SHARP Service Manual

RT-1122H

APSS

Auto Program Search System

STEREO CASSETTE TAPE DECK

MODEL RT-1122H

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

SPECIFICATIONS

Type:	4-track 2-channel stereo cassette tape recorder player deck
Power source:	AC 110/220/240 V, 50/60 Hz
Power consumption:	10 W
Semiconductors:	5-IC 16-Transistor 17-Diode 1-LED
Dimensions:	Width: 390 mm Height: 158 mm Depth: 245 mm
Weight:	5 kg
Input circuitry:	Microphone jacks: 6.8K ohms x 2 Line input jacks: 560K ohms x 2 Record/playback socket (5-pin, DIN) x 1
Output circuitry:	Headphones jack: 8 ohms x 1 Line output jacks x 2 Record/playback socket (5-pin, DIN) x 1
Tape:	Philips standard compact cassette tape
Tape speed:	4.8 cm/sec.
Record/playback time:	60 minutes (C-60)
Recording system:	AC bias system (84 kHz)
Erasing system:	AC erasing
Fast forward & rewind time:	Maximum 120 seconds (C-60)

Wow and flutter:	0.09% WRMS 0.25% (DIN 45 507)
Frequency response:	
Normal tape:	40 – 10,000 Hz ± 3dB 40 – 11,000 Hz (DIN 45 511)
CrO_2 /Ferri-chrome tape:	40 – 12,000 Hz ± 3dB 40 – 14,000 Hz (DIN 45 511)
Signal to Noise ratio:	50 dB, For normal tape, at LINE-IN
Distortion:	1.5%
Channel separation:	35 dB
Erase ratio:	65 dB
Input sensitivity and input impedance:	
Microphone:	0.2 mV, 6.8K ohms
Record/playback socket:	0.7 mV, 7.8K ohms
Line in:	50 mV, 560K ohms
Output level and loaded impedance:	
Headphones:	63 mV ('0' VU), 8 ohms
Record/playback socket:	500 mV ('0' VU), 50K ohms
Line out:	500 mV ('0' VU), 50K ohms

Specifications are subject to change without prior notice.

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NAMES OF PARTS (Refer to Figure 2–1 and Figure 2–2)

1. Digital tape counter
2. APSS indicator
3. Record indicator
4. Tape counter reset button
5. Level meters
6. Power switch
7. Pause key
8. Record key
9. Rewind/Reverse APSS key
10. Play key
11. Fast-forward/Forward APSS key
12. Stop key
13. Headphones jack
14. Microphone jacks
15. Editor switch
16. Bias selector switch
17. Equalizer selector switch
18. Record level controls
19. Output jacks
20. Input jacks
21. Mains voltage selector
22. Record/playback socket (5-pin, DIN)

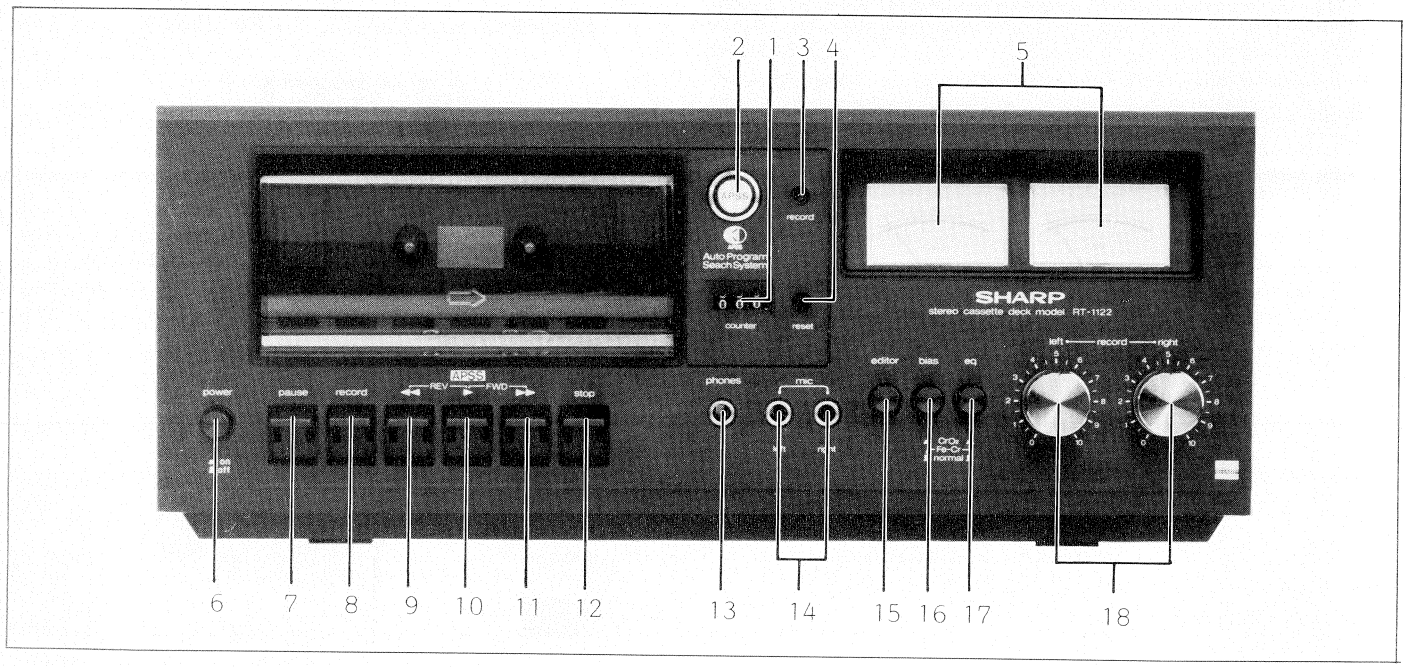


Figure 2–1

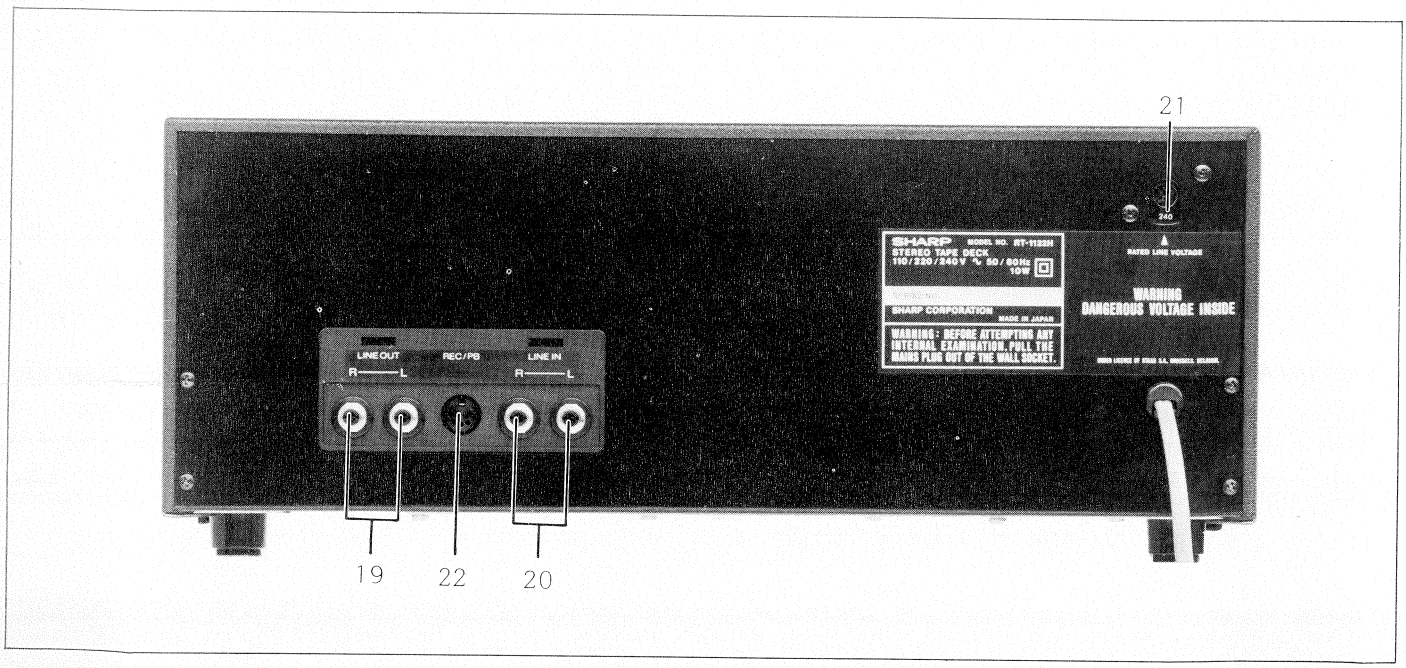


Figure 2–2

VOLTAGE SELECTION (Refer to Figure 3–1)

Check the preset voltage selector before connecting the mains plug to a mains outlet. If the setting is different from that of your local mains supply voltage, the selector must be re-set as follows.
Rotate the voltage selector by using a screw-driver so that your local voltage number can be seen.

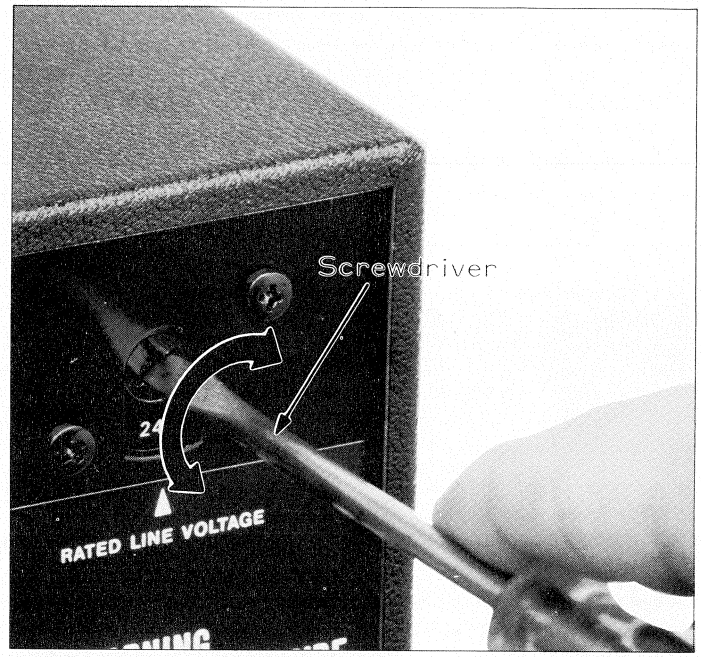


Figure 3–1

DISASSEMBLY

1. **Cabinet Removal** (Refer to Figure 3–2)
   Take out the four screws (two each at right and left) retaining the cabinet. Shift the cabinet backwards about 20 mm and hold it up while straightening at the bottom, then it is allowed to remove the cabinet.

2. **Bottom Board Removal** (Refer to Figure 3–2)
   Turn the unit over and remove the eight screws retaining the bottom board (the two fixing the legs included). Then shift the board backwards to take it out.

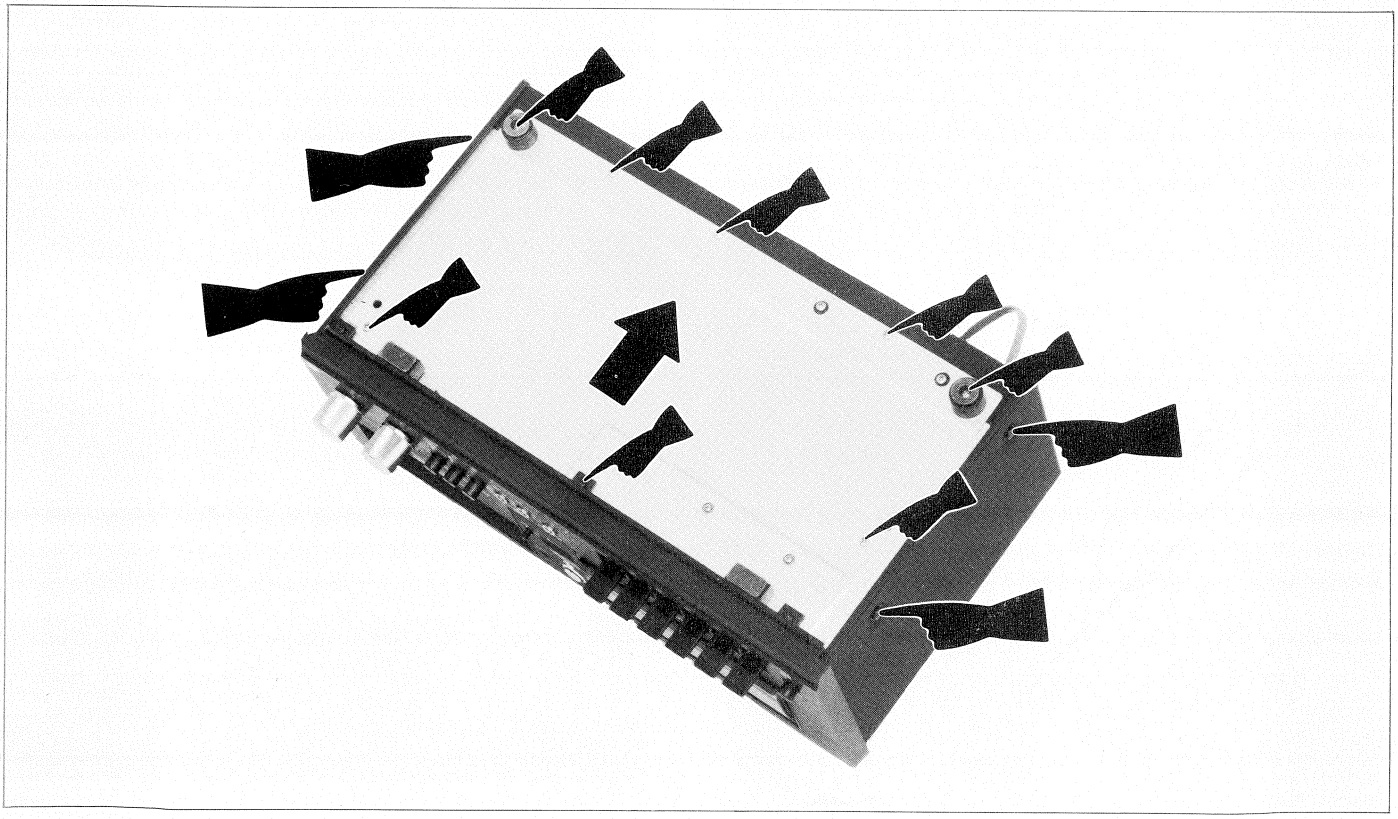


Figure 3–2

3. Mechanism Block Removal

(1) Remove the cabinet and bottom board referring to "Cabinet Removal" and "Bottom Board Removal".
(2) Remove the spring which is used to couple the record/playback selector switch (SW1) and lever. (Refer to Figure 4–1)
(3) Draw the three connection sockets out of the record/playback amplifier printed wiring board. (Refer to Figure 4–1)
(4) Remove the Hall element printed wiring board from the bracket retaining the tape counter (on the H element holder plate of the printed wiring board found a pawl to hook over the bracket retaining t tape counter). (Refer to Figure 4–2)
(5) Detach the counter drive belt from the tape counte (Refer to Figure 4–3)
(6) Remove the four screws retaining the mechanis block, shift the mechanism block backwards and ho it up to remove. (Refer to Figure 4–4, Figure 4– and Figure 4–6)

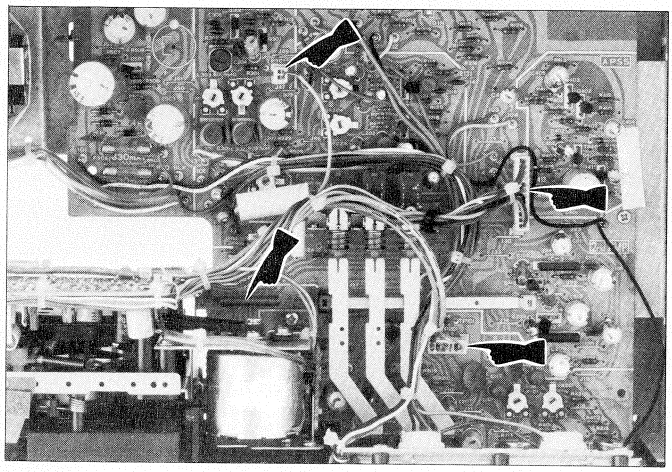


Figure 4–1

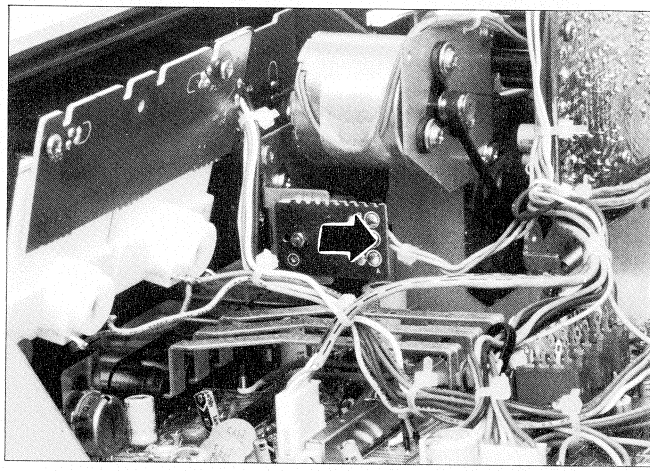


Figure 4–2

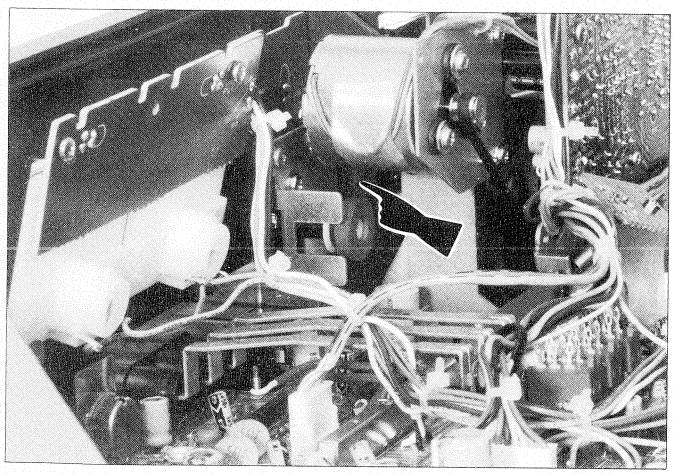


Figure 4–3

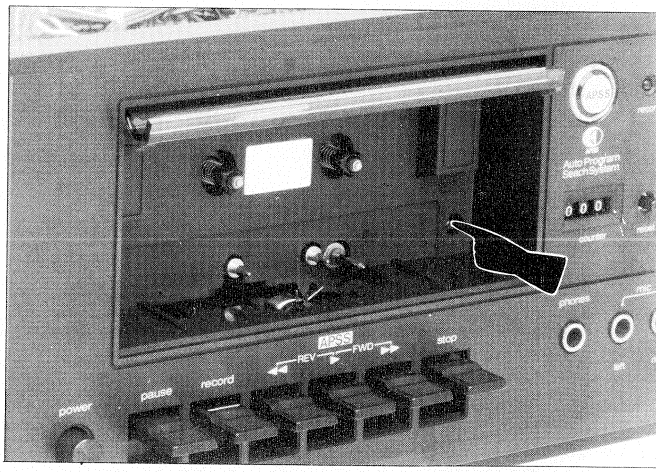


Figure 4–4

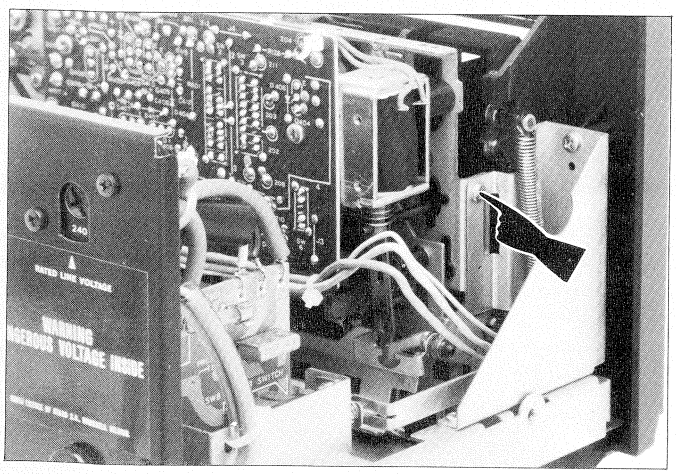


Figure 4–5

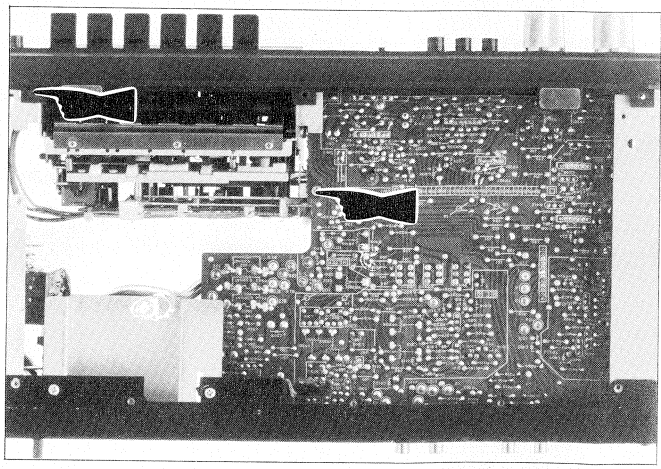


Figure 4–6

MECHANICAL ADJUSTMENT

Pause Mechanism Adjustment (Refer to Figure 5–1)

1. Set the unit in play mode (push the key marked ▶) and slowly push the pause key. Make sure that the take-up idler and pressure roller come respectively off the take-up turntable and capstan at the same time.
2. If the operation 1 above is found not normal, adjust it by bending a part (marked A) of the pressure roller lever.

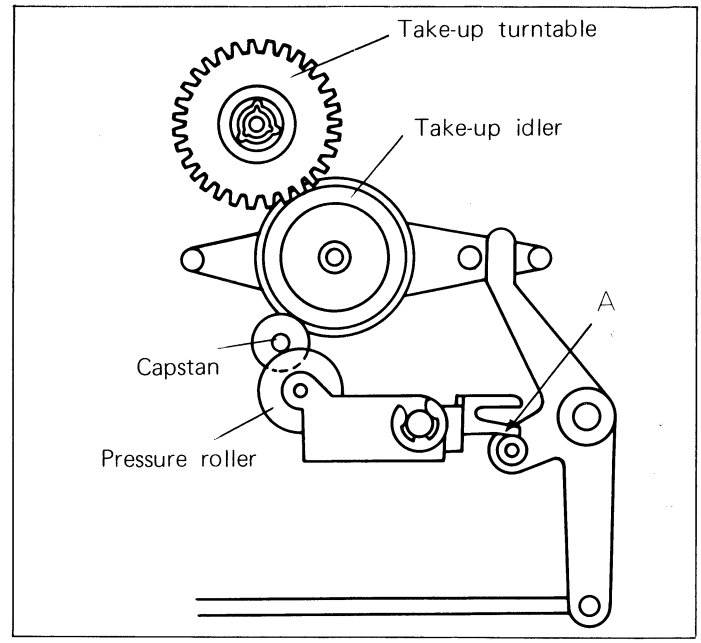


Figure 5–1

Pressure Roller Pressure Adjustment
(Refer to Figure 5–2)

1. Set the unit in play mode.
2. Use a tension gauge (0 to 500 grams) to push it to a part indicated in Figure 5–2 of the pressure roller until the pressure roller comes off the capstan. After that, gradually weaken the applied force in the reverse direction until the pressure roller hits the capstan (say, it begins to rotate) and make sure that the tension gauge is then reading 250 to 350 grams (8-13/16 oz to 12-11/32 oz).
3. If the above value is not satisfied, adjust the pressure roller pressure spring by bending it or replace.

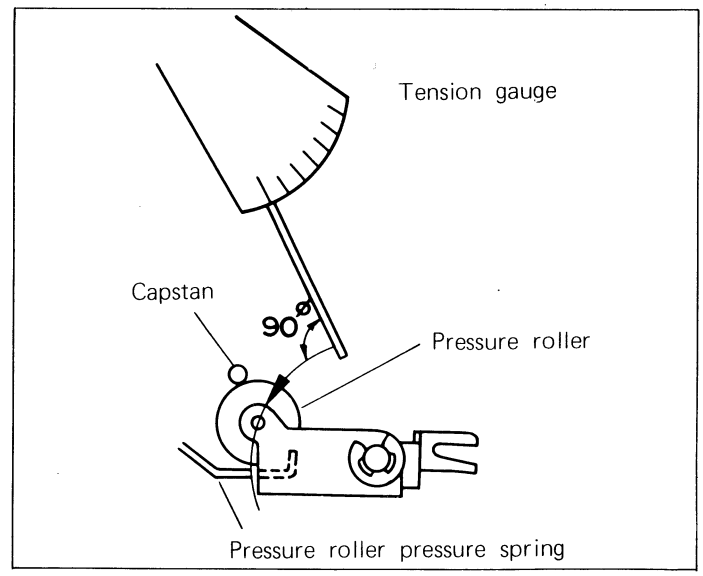


Figure 5–2

Capstan's Thrust Clearance Adjustment
(Refer to Figure 5–3)

1. Slowly rotate clockwise the screw adjusting the capstan's thrust clearance until there is no clearance found.
2. Next rotate counterclockwise the said screw by 1/5 to 2/5 turns from the above point. Since screw's pitch is 0.5 mm (.0197 in.), a clearance of 0.1 to 0.2 mm (.0039 in. to .0079 in.) is thus produced.

Take-up Pulley Position Adjustment
(Refer to Figure 5–3)

1. Set the unit in play mode.
2. Make sure that the take-up idler becomes in contact with the take-up pulley as indicated in Figure 5–3.
3. If the operation 2 above is not satisfied, adjust the position of take-up pulley. (Note that the take-up pulley, made of rubber, is movable over the capstan.)

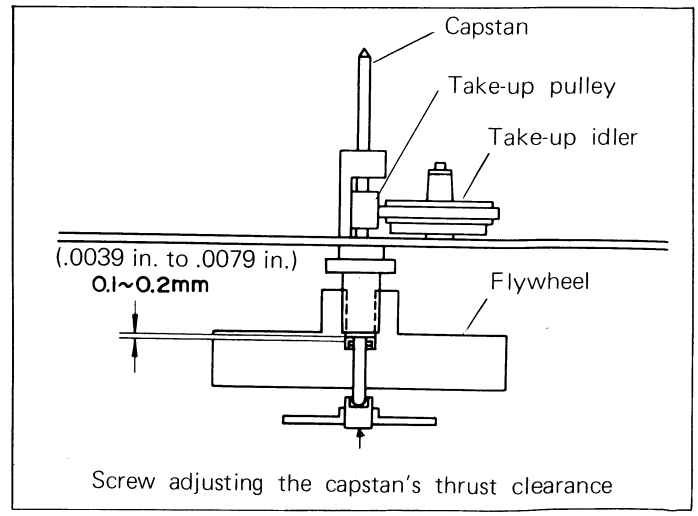


Figure 5–3

Torque Check in Play/Fast Forward/Rewind Modes
(Refer to Figure 6–1)

1. Mount a torque measuring reel on the turntable (on the take-up side at Play or Fast Forward mode and to the supply side at Rewind mode).
2. Gradually weaken an applied force by the tension gauge until the turntable begins to rotate at a nearly steady speed, and measure the reading of tension gauge.
3. Normal torque values in each mode are tabulated below.
   Note:
   In play mode, check that when the turntable (take-up side) is stopped, there is no slipping between the turntable and take-up idler or between the take-up idler and take-up pulley.

Mode	Torque value
Play	35 to 60 gram·cm (1–15/64 oz to 2–1/8 oz)
Fast Forward	Over 70 gram·cm (2–15/32 oz)
Rewind	Over 70 gram·cm (2–15/32 oz)

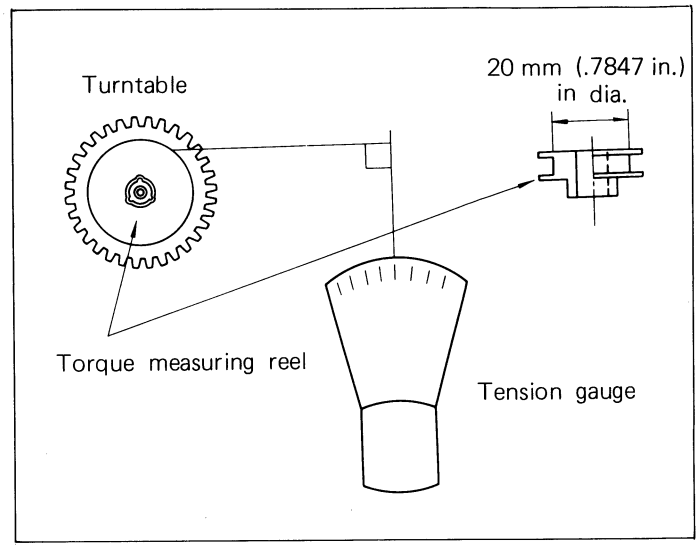


Figure 6–1

Plunger/Solenoid Position Adjustment
(Refer to Figure 6–2)

1. Set the unit in Play or Record mode to stop the turntable (take-up side), then the automatic stop circuit functions to attract the plunger/solenoid. At the time, if the setting position of the plunger/solenoid is not normal, the plunger/solenoid interlocking lever can't fully move the play lever lock plate so that the mechanism can't get in a stop. In this case, loosen the screw retaining the plunger/solenoid to adjust the setting position of the plunger/solenoid (to make the plunger/solenoid proper be in parallel with the mechanism main chassis.)
2. With the unit placed in Play (or Record) mode, make sure that the plunger/solenoid interlocking lever is in contact with the play lever lock plate and simultaneously that there is a clearance of 0 to 0.5 mm (0 to .0197 in.) between the selector lever of the plunger/solenoid interlocking lever and the plate spring of the rewind/fast forward operation lever.
3. Set the unit in Fast Forward (or Rewind) mode and make sure that the plunger/solenoid interlocking lever is in contact with the fast forward/rewind lever lock plate. Next check that the fast forward (or rewind) lever is released enough to fully attract the plunger/solenoid iron core.

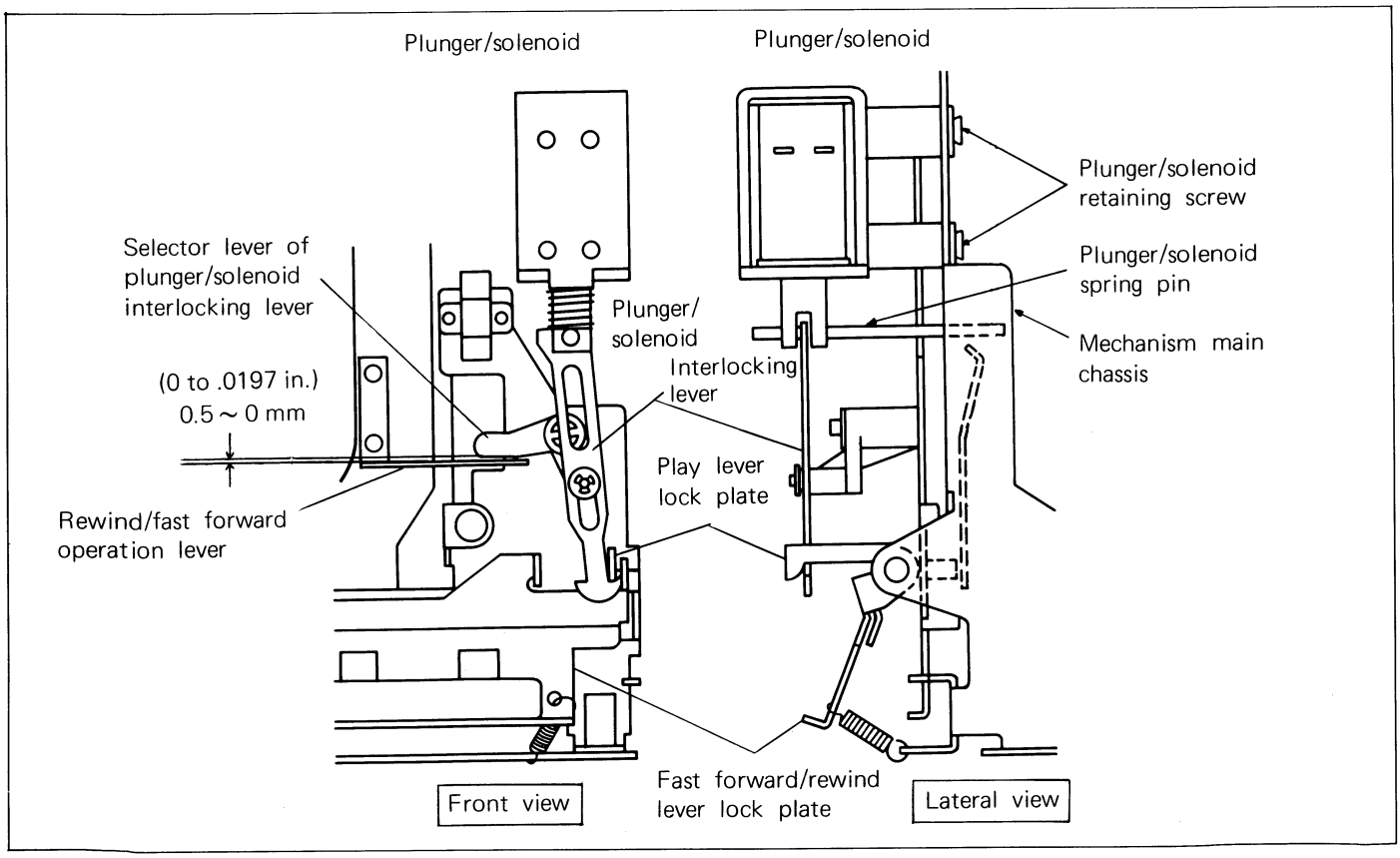


Figure 6–2

Tape Speed Adjustment (Refer to Figure 7–1)

1. Use a test tape (3 kHz Recorded) to be played back (at the midpoint but not at the running start or end point.)
2. Connect a resistor of 50K ohms to the line output jack (J3C or J3D) and further a wow/flutter meter to the both ends.
3. Use a bladed screwdriver to adjust, through the adjusting hole at the bottom of motor, the semi-variable resistor so that the reproduced frequency becomes 2975 to 2990 Hz.

   Note:

   Before the adjustment, check that there is no stain nor other impurities on the motor pulley, drive belt, flywheel, take-up pulley, take-up idler and take-up turntable.

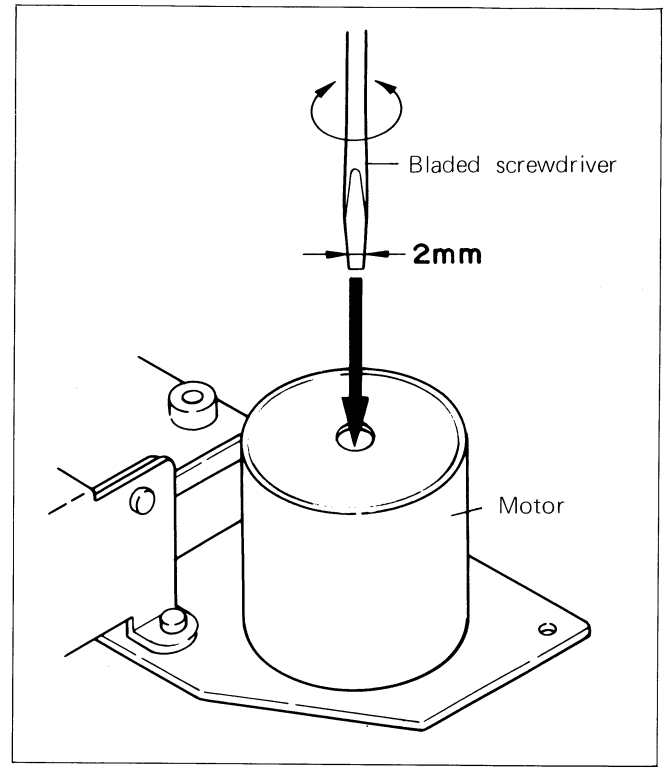


Figure 7–1

ELECTRICAL ADJUSTMENT

ADJUSTMENT POINTS

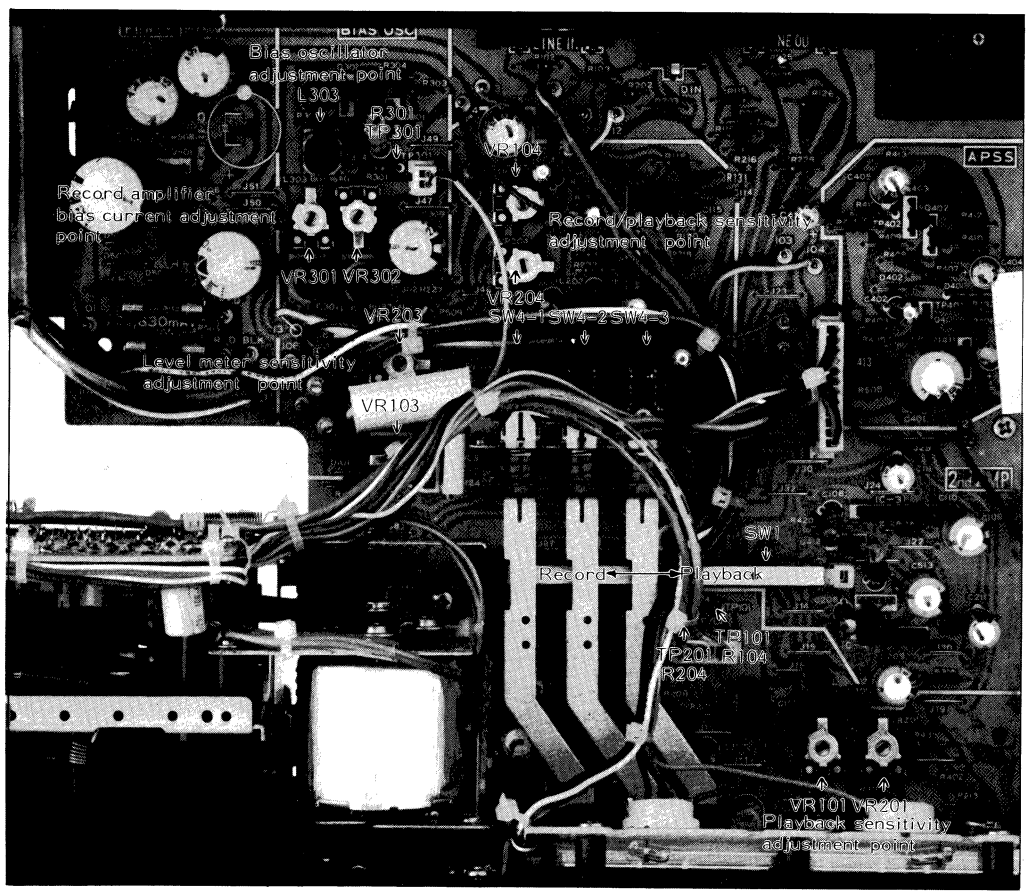


Figure 7–2

Record Amplifier Bias Current/Bias Oscillator Frequency Adjustment (Refer to Figure 8–1)

1. Connect a VTVM to the resistor (R104 or R204) located on the record/playback amplifier printed wiring board.
2. Set the equalizer selector switch (SW4–3) and bias selector switch (SW4–2) respectively to "CrO_2" position.
3. Connect an oscilloscope (the vertical input terminal) to the output terminal of VTVM and further a low-frequency oscillator to this oscilloscope (the horizontal input terminal).
4. Place the unit in Record mode. Adjust the bias oscillator coil (L303) so that the bias oscillator frequency becomes 84 kHz when the oscilloscope is operated to draw a Lissajou's figure on it.
5. Set the equalizer selector switch (SW4–3) and bias selector switch (SW4–2) respectively to "normal" position.
6. Adjust the bias current semi-variable resistor (VR301 or VR302) so that the VTVM reads 62 mV.

Note:
When both the equalizer selector switch (SW4–3) and bias selector switch (SW4–2) are set to "CrO_2" position, check that the VTVM is reading 80 to 92 mV.

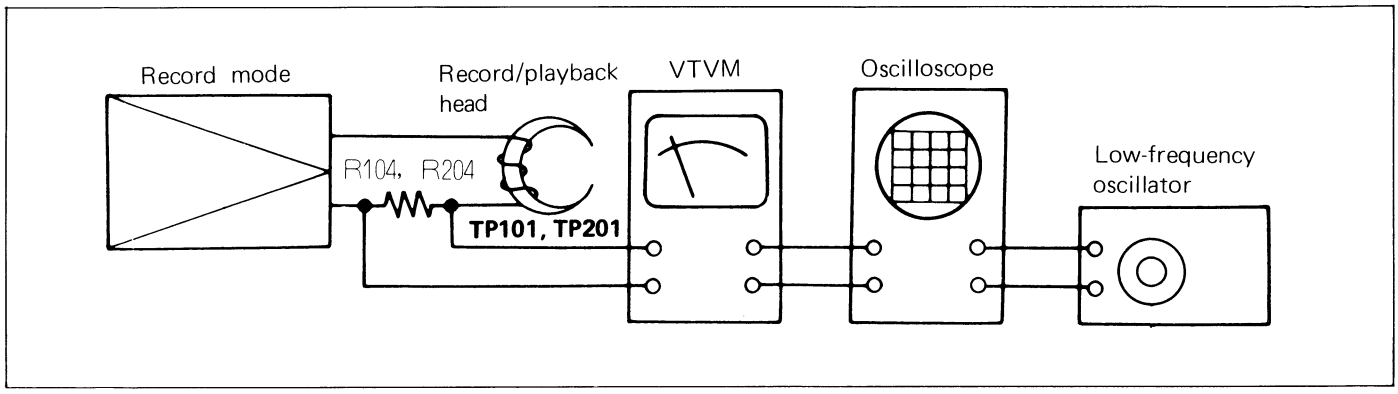


Figure 8–1

Record Amplifier Erase Current Check
(Refer to Figure 8–2)

1. Connect a VTVM to the resistor (R301) located on the record/playback amplifier printed wiring board.
2. Set the equalizer selector switch (SW4–3) and bias selector switch (SW4–2) respectively to "normal" position.
3. Place the unit in record mode and make sure that the VTVM indicates 63 to 107 mV.
4. Set the equalizer selector switch (SW4–3) and bias selector switch (SW4–2) respectively to "CrO_2" position, and check that the VTVM reads 90 to 150 mV.

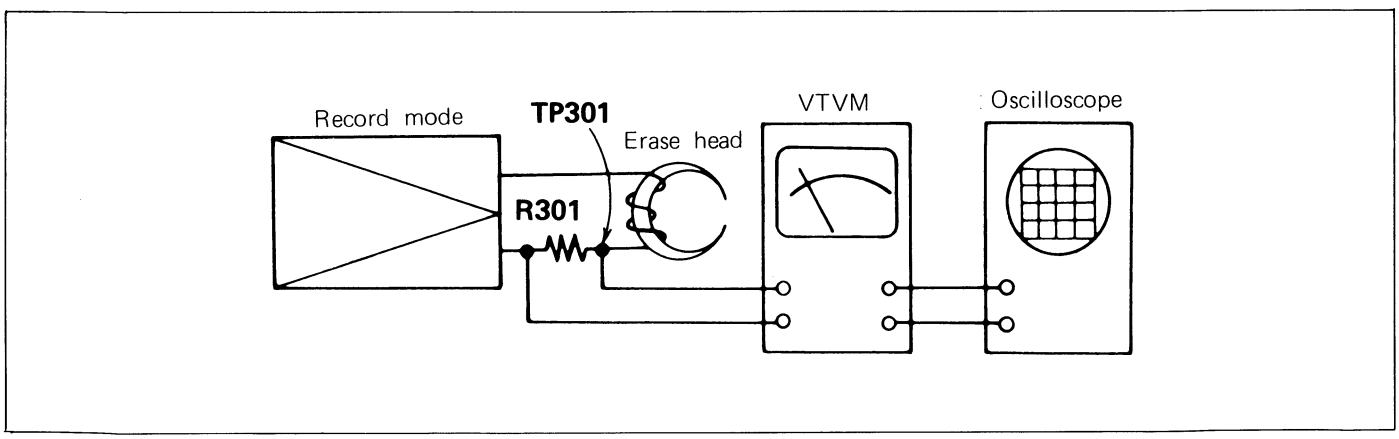


Figure 8–2

Record/Playback Head Azimuth Adjustment
(Refer to Figure 9–1)

1. Connect a VTVM to the line output jack (J3C or J3D).
2. Set the equalizer selector switch (SW4–3) and bias selector switch (SW4–2) respectively to "normal" position.
3. Use a test tape (TEAC MTT–114, 10 kHz, 250 pWb/mm, –10 dB pre-recorded) to be played back.
4. Adjust the head azimuth adjusting screw so that the VTVM reads its maximum.

Note:
If an oscilloscope is available, it is recommendable to check that both the right and left channels are in phase with each other.

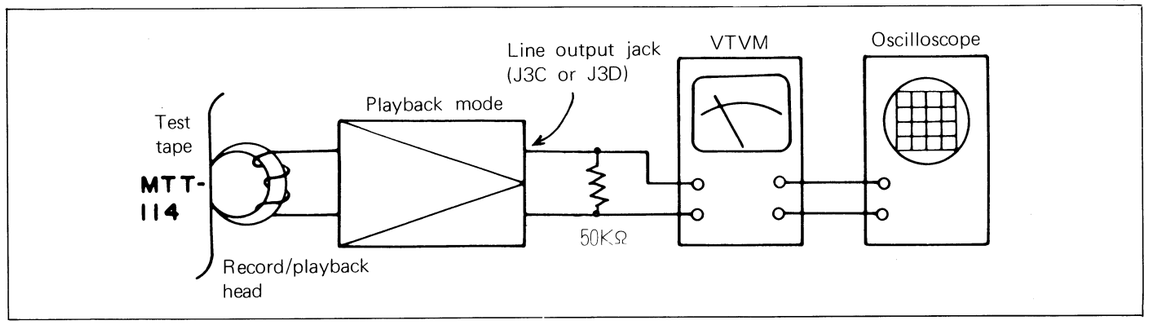


Figure 9–1

Level Meter Sensitivity Adjustment
(Refer to Figure 9–2)

1. Connect a VTVM to the line output jack (J3C or J3D).
2. Connect a low-frequency oscillator to the line input jack (J3A or J3B) and apply to the unit a signal of oscillator frequency 1 kHz, output level −10 dB (315mV).
3. Place the unit in record mode and adjust the record level control (VR102 or VR202) so that the VTVM reads 500 mV.
4. Adjust the level meter sensitivity adjusting semi-variable resistor (VR103 or VR203) so that the level meter (ME101 or ME201) indicates 0 VU.

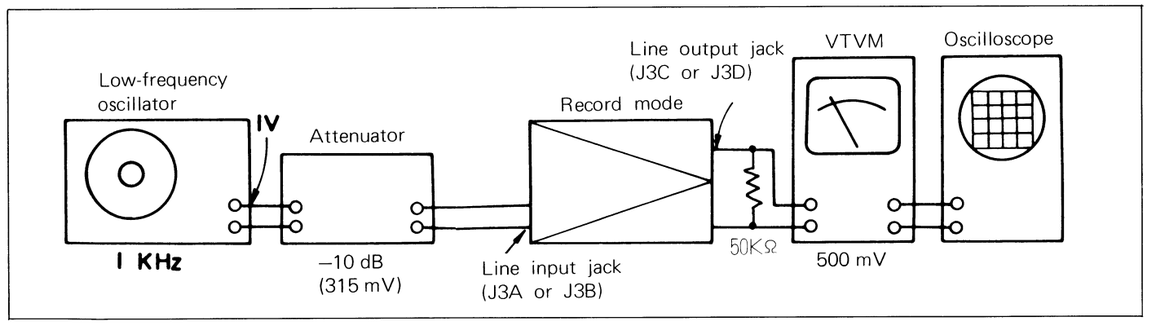


Figure 9–2

Playback Sensitivity Adjustment (Refer to Figure 9–3)

1. Connect a VTVM to the line output jack (J3C or J3D).
2. Use a playback sensitivity adjustment test tape (TEAC MTT–150, 400 Hz, 200 pWb/mm pre-recorded) to be played back.
3. Adjust the playback sensitivity adjusting semi-variable resistor (VR101 or VR201) so that the VTVM reads 710 mV.

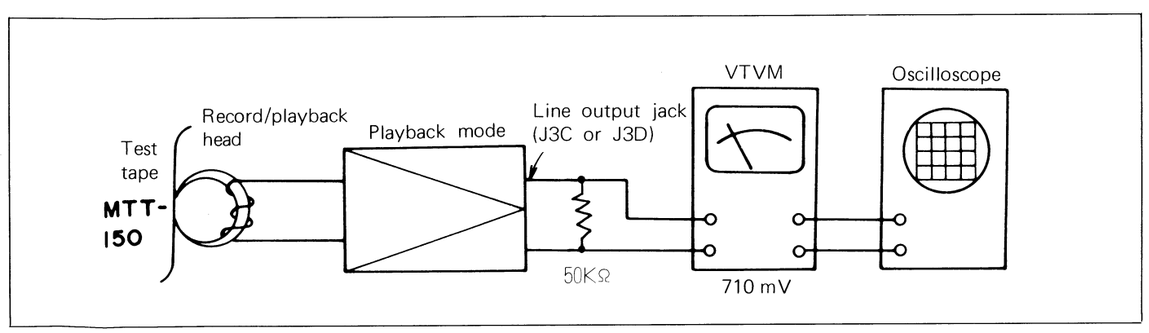


Figure 9–3

Record/Playback Sensitivity Adjustment
(Refer to Figure 10–1)

1. Connect a VTVM to the line output jack (J3C or J3D).
2. Connect a low-frequency oscillator to the line input jack (J3A or J3B) and apply to the unit a signal of oscillator frequency 1 kHz, output level −10 dB (315 mV).
3. Use a normal tape (TEAC MTT-502) to be recorded and adjust the record level control (VR102 or VR202) so that the VTVM indicates 500 mV. Set the equalizer selector switch (SW4–3) and bias selector switch (SW4–2) respectively to "normal" position.
4. Make the normal tape once recorded in the step 3 above be played back and adjust the record/playback sensitivity adjusting semi-variable resistor (VR104 or VR204) so that the VTVM reads 500 mV.
5. Repeat the steps 3 and 4 until the VTVM assures the reading of 500 mV ± 50 mV.
6. Replace the normal tape MTT-502 by a take MAXELL UDXL II, set the equalizer selector switch (SW4–3) and bias selector switch (SW4–2) respectively to "CrO_2" position and place the unit in record mode.
7. Make the tape MAXELL UDXL II once recorded in the step 6 above be played back and check that the VTVM reading is within the range of 400 mV to 625 mV.

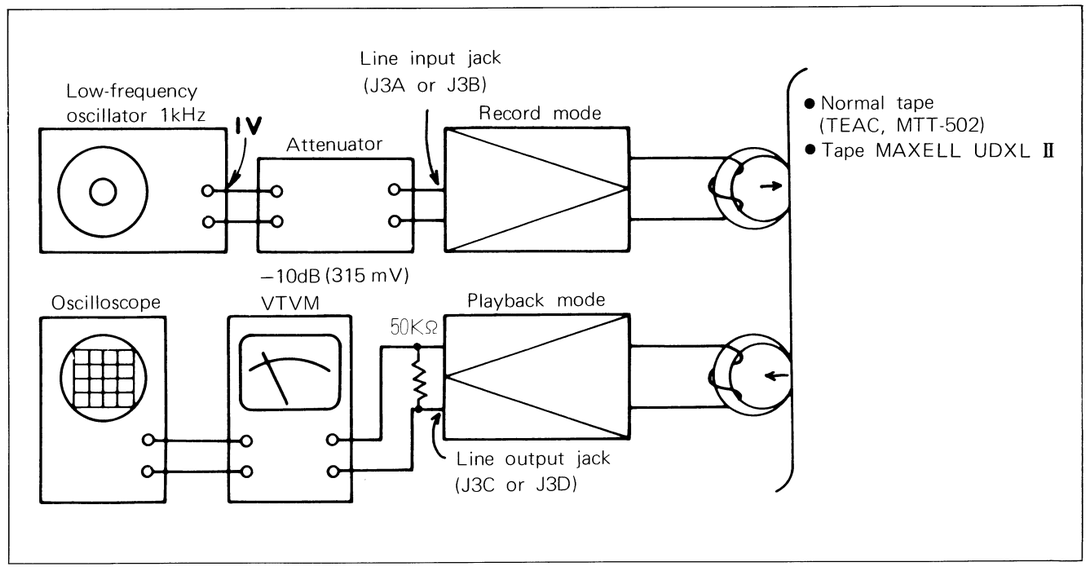


Figure 10–1

CIRCUIT DESCRIPTION

APSS (Auto Program Search System)
The APSS is a convenient device that detects each starting point of the programs recorded in a generally available tape and allows the unit to automatically start playing from that point. In playback mode, when the rewind/reverse APSS key (◀◀ REV-APSS) or the fast forward/forward APSS key (▶▶ FWD-APSS) is pushed, the APSS indicator lights up, the sound disappears and the tape is rewinded or fast forwarded at as high speed. And when the tape reaches a point between the programs, the function of the rewind or fast forward key is automatically released and the unit resumes playback mode.

APSS Circuit (Refer to Figures 11–1 and 12–1)
The APSS circuit consists of limiter circuit, voltage-doubling rectifier circuit, level comparator circuit and plunger control circuit, the details of which are explained here.

1. The limiter circuit is composed of transistors Q411 and Q401 and it amplifies the input signal up to the APSS operation signal level.
2. The voltage-doubling rectifier circuit is composed of diodes D401 and D402, where the output of the limiter circuit is voltage-doubly rectified.
3. The time constant circuit is composed of resistor R407 and electrolytic capacitor C404 and it controls operation timing of the level comparator circuit.
4. The level comparator circuit is composed of transistors Q402 and Q403. With the level comparator circuit of which the function is based on switching characteristic of transistors, the rectifying voltage, which has been produced by the voltage-doubling rectifier circuit and time constant circuit, is used to be input to the base of Q402.
5. The plunger control circuit is composed of transistors Q404 and Q405: the transistor Q404 is a differential circuit to make the plunger operate only when output voltage of the level comparator circuit decreases while that Q405, a switching circuit to turn on or off the plunger with the output from the Q404.

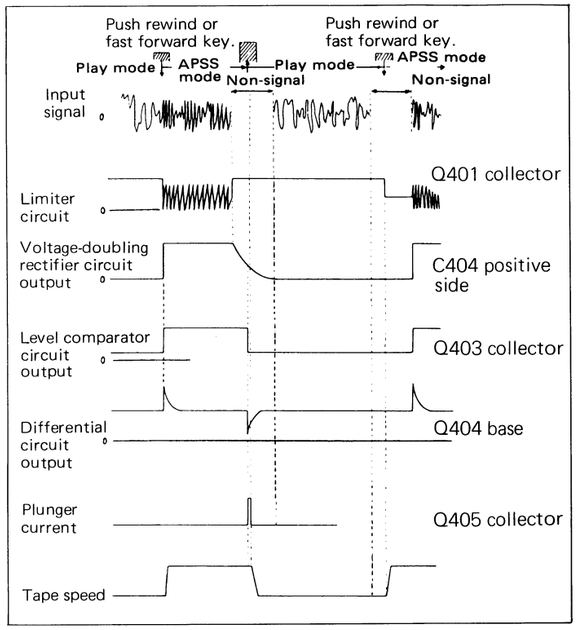


Figure 11–1

Function of APSS Circuit (Refer to Figures 11–1 and 12–1)
When the unit is placed in APSS mode, signal having been amplified by the integrated circuit (IC1 or IC2) is applied to the limiter circuit (composed of Q411 and Q401) where the level is limited and then voltage-doubly rectified by the diodes (D401 and D402). The signal thus rectified is passed on to the level comparator circuit (composed of transistors Q402 and Q403) so that the transistor Q402 is turned on while that Q403, off: at the time, collector voltage of the transistor Q403 becomes 19.5 V. As a result, both the transistors Q404 and Q405 are switched off. The result is that as long as there exists signal on the tape, the unit retains at APSS mode because the plunger is left in a stop.

Meanwhile, when no signal is present on the tape, the transistor Q402 of the level comparator circuit is switched off while its transistor Q403, on: at the time, collector voltage of the transistor Q403 becomes 0 V, resulting in that charge current runs via the resistor R413 to the electrolytic capacitor C405. With this charge current, base voltage of the transistor Q404 drops sharply so that this transistor Q404 is switched on. Accordingly, base voltage of the transistor Q405 increases so that this transistor Q405 is switched on, thereby to allow a current flow to the plunger: the result is that the unit resumes play mode getting out of APSS mode.

Function of Automatic Stop System (Refer to Figure 12–1)
The automatic stop system employed in the unit is based on such a principle that Hall device IC-5 is to detect variations of magnetic field caused as the magnet on the tape counter's shaft rotates at different speeds according to the modes.
When the magnet which is attached on the tape counter's shaft rotates in each of record, playback, fast forward and rewind modes, the Hall device IC-5 produces minute pulse to turn on or off the transistor Q414. Next the transistor Q414 also creates pulse and this pulse is voltage-doubly rectified by the diodes D408 and D413 so that the electrolytic capacitor C408 is negative charged: the result of this action is that the base voltage of transistor Q406 becomes nearly 0.5V so that the multivibrator composed of transistors Q406 and Q407 is forced to stop. On the other hand, when the magnet on the tape counter's shaft stops to rotate (that is, when the tape reaches its end), no pulse is produced by the Hall device so that transistor Q414 also stops to create any pulse, resulting in that the electrolytic capacitor C408 once stops to be charged. At the time, however, there develops a current running through the resistor R418 so that the electrolytic capacitor C408 is, in turn, positive charged and therefore the base voltage of the transistor Q406 increases to over 1.5V. Accordingly, the multivibrator composed of transistors Q406 and Q407 begins to function so that the transistors Q406 and Q405 are switched on in the sequence to allow a current flow in the plunger SOL401: it is in this way that all the mechanisms get in stop. In the case of APSS mode, note, in addition, that when the tape reaches its end the APSS key function is cancelled with the first attraction of plunger and next the play key function, with its second attraction, thereby resulting in a stop of the whole circuit.

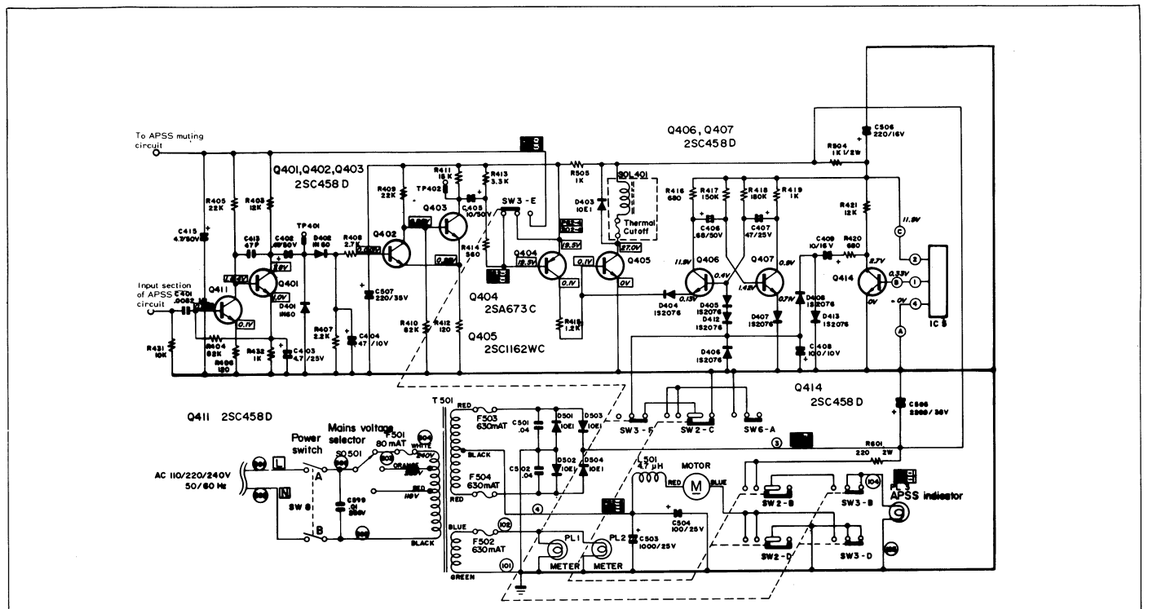


Figure 12–1

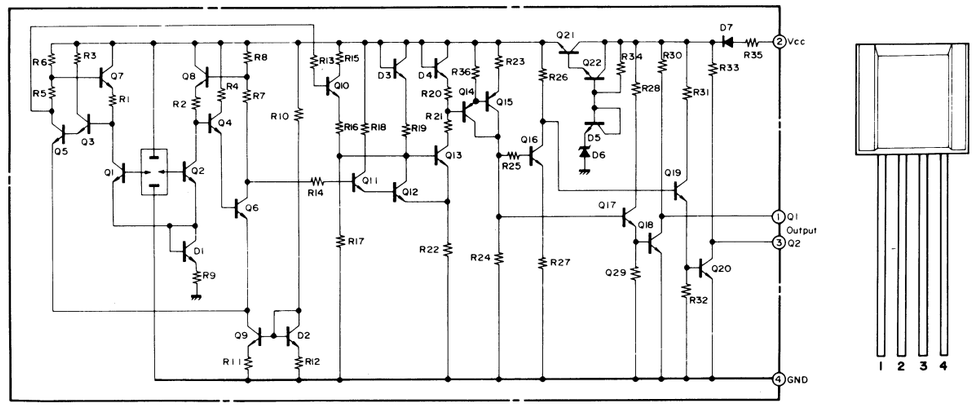


Figure 12–2 EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT (IC-5)

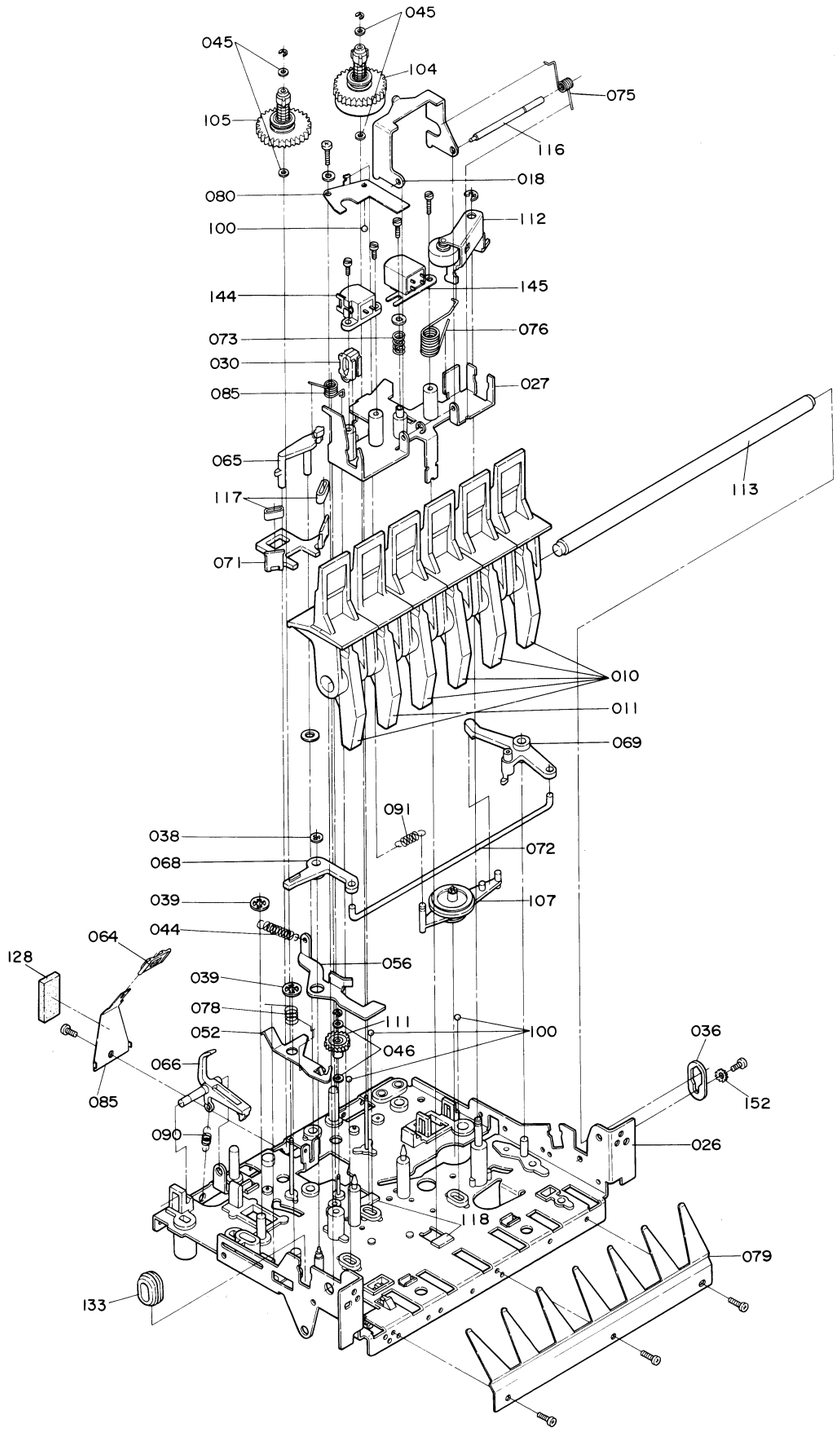


Figure 13 MECHANISM EXPLODED TOP VIEW

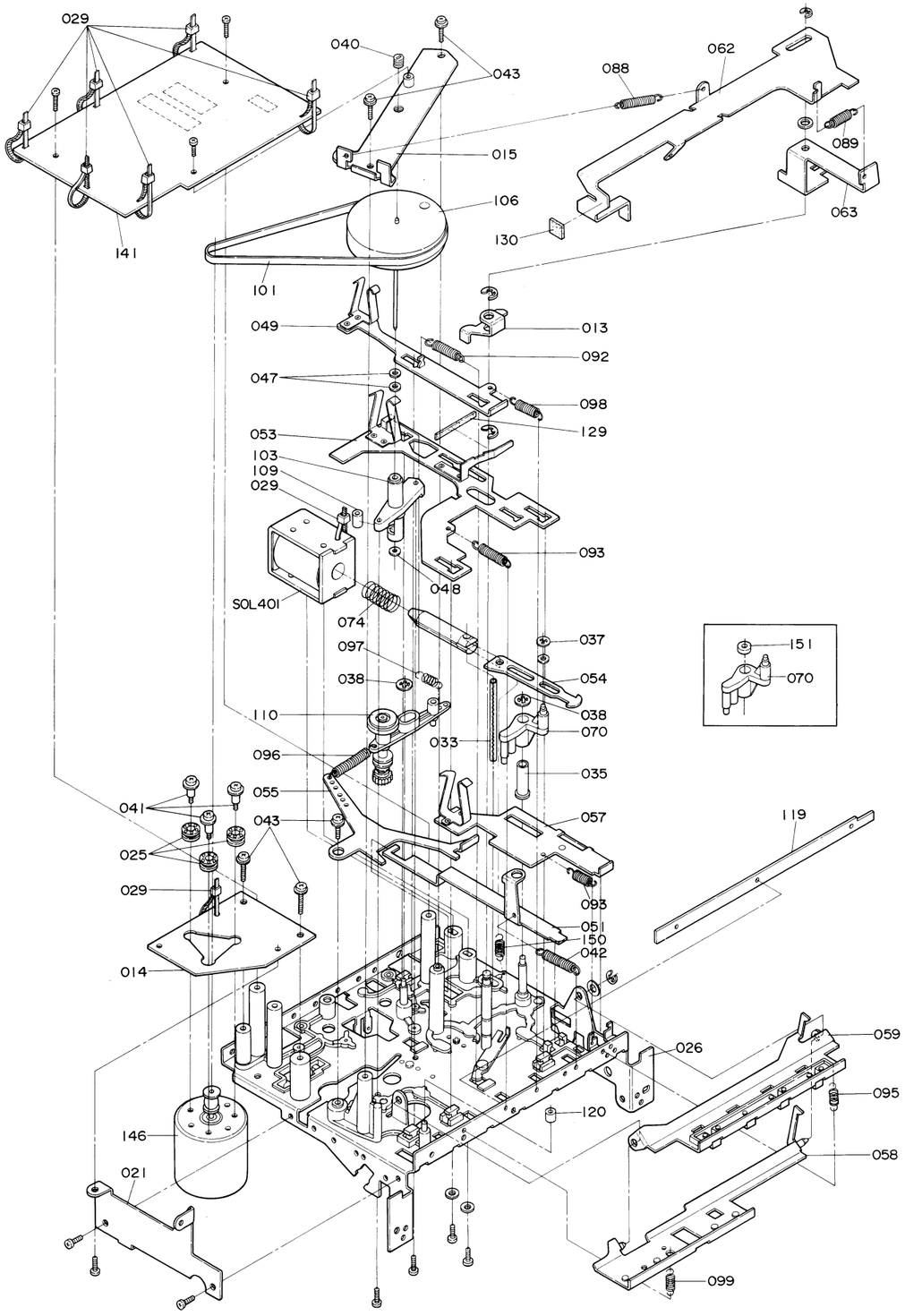


Figure 14 MECHANISM EXPLODED BOTTOM VIEW

D404, D405, D406, D407, D408, D412, D413

IS2076

Play mode	IC5	0.33V	11.9V
	1		2

Play mode	Q414	0V	2.7V
Play mode	Q407	0.71V	0.9V
Play mode	Q406	0.13V	11.9V
Play mode	Q405	0V	27.0V
APSS mode	Q404	19.5V	0V
	Emitter		

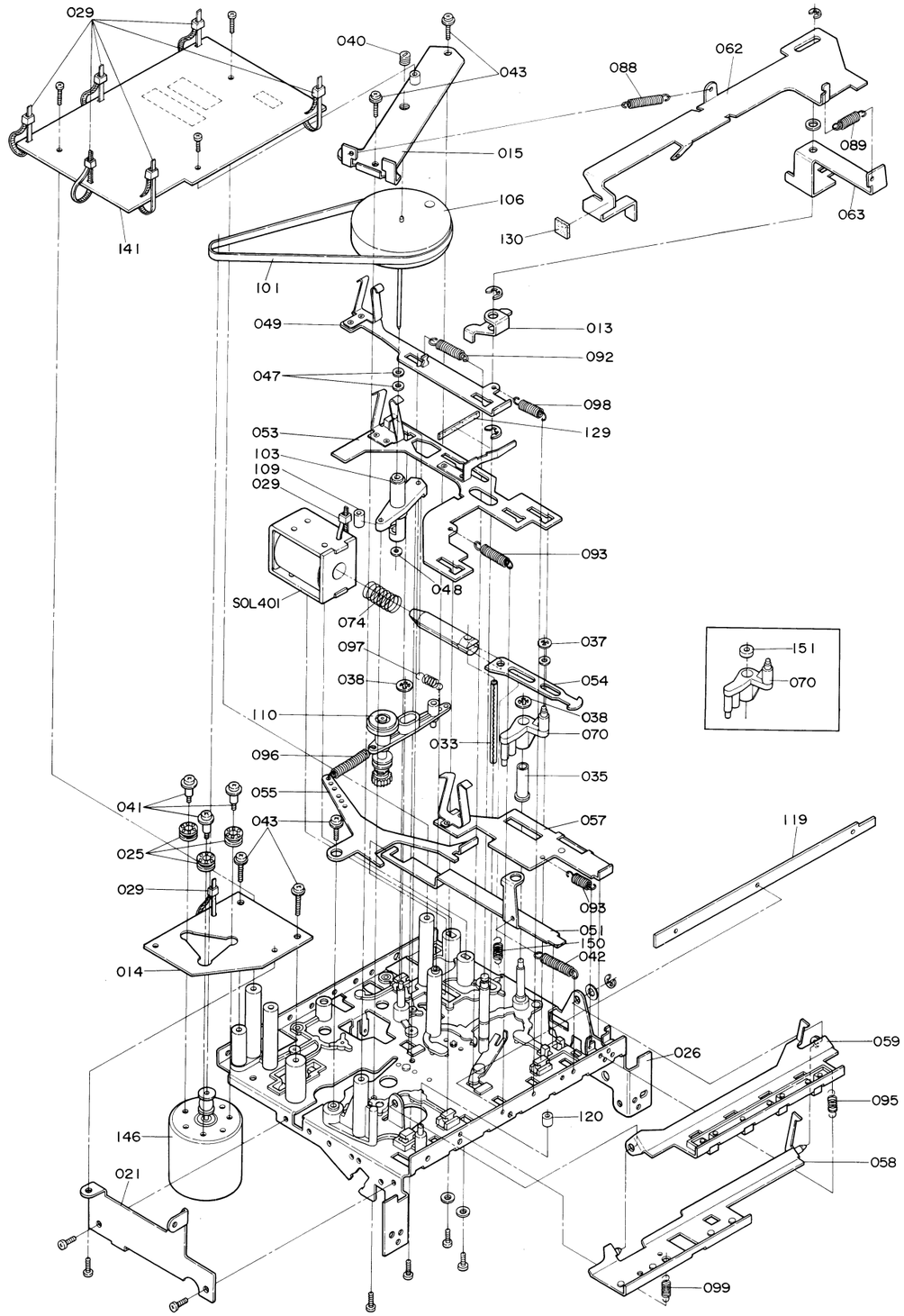


Figure 14 MECHANISM EXPLODED BOTTOM VIEW

D404, D405, D406, D407, D408, D412, D413
IS2076
Anode — Cathode

Q405
2SC1162WC
Emitter — Base — Collector

IC5
DN838
4 3 2 1

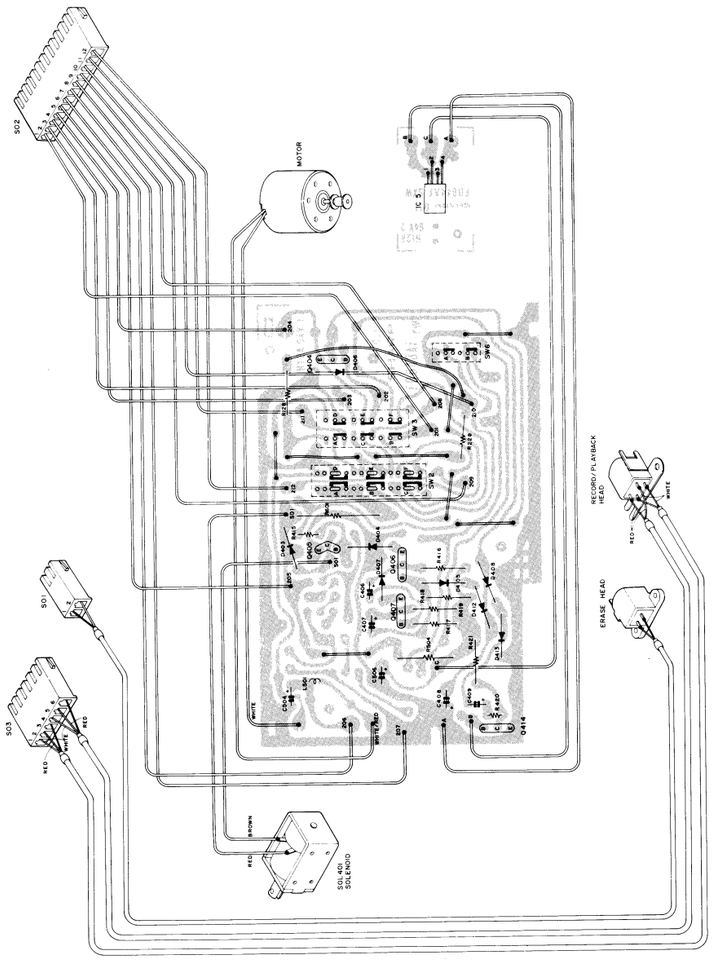
Q404
2SA673C
Emitter — Base — Collector

D403
IOE1
Anode — Cathode

Play mode	IC5
1	0.33V
2	11.9V
4	0V

Play mode	Q414	Q407	Q406	Q405
1	0V	0.71V	0.13V	0V
2	2.7V	0.9V	11.9V	27.0V
4	0.33V	1.42V	0.4V	0.1V

APSS mode	Q404
Emitter	19.5V
Collector	0.1V
Base	19.5V



Q406, Q407, Q414
2SC458D
Emitter — Base — Collector

Figure 15 WIRING SIDE OF PRINTED WIRING BOARD (1/2)

Mains supply cord	Bushing & Plug	Connection		Safety standard	
		L (A)	N (B)		
QACCB0052AF09	LBSHC0002AGZZ	Brown	Blue	BEAB	
QACCL0001AFZZ	LBSHC0007AFZZ	Brand stamp	Projection stripe	SAA	
QACCV0001AGZZ	LBSHC0004AGZZ	Black	Blue	VDE	
QACCZ0002AG08	LBSHC0007AFZZ QPLGA0201AGZZ	----------	----------	----------	
QACCZ0002TA0F	LBSHC0007AFZZ	----------	----------	----------	

	Record mode	Record mode	APSS mode	APSS mode	APSS mode	APSS mode	APSS mode
	Q101, Q201	Q301, Q302	Q401	Q402	Q403	Q411	Q412, Q413
Emitter	2.7V	0.55V	1.0V	0.26V	0.26V	0.1V	0V
Collector	10.2V	13.4V	7.8V	0.98V	-----	1.64V	0.006V
Base	2.1V	0.35V	1.64V	0.013V	0.98V	0.72V	0.7V

	Play mode
	Q501
Emitter	19.9V
Collector	26.6V
Base	20.5V

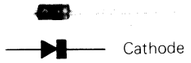
	Play mode	Play mode
	IC1, IC2	IC3, IC4
1	2.1V	10.5V
2	0.62V	10.9V
3	0.01V	10.2V
4	0V	0V
5	0.71V	9.5V
6	7.0V	19.7V
7	14.9V	10.2V

IC1、IC2
TA7129P

1234567

D601

D501、D502、D503、D504、D505
IOE1



Anode — Cathode

Cathode — Anode

D101、D201、D401、D402
IN60

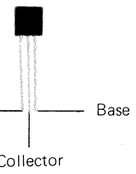
Anode — Cathode

IC3、IC4
TA7140P

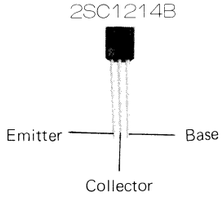
1234567

Q101、Q201、Q401、Q402、Q403、
Q411、Q412、Q413、

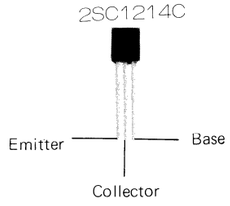
2SC458D



Q501
2SC1214B



Q301、Q302
2SC1214C



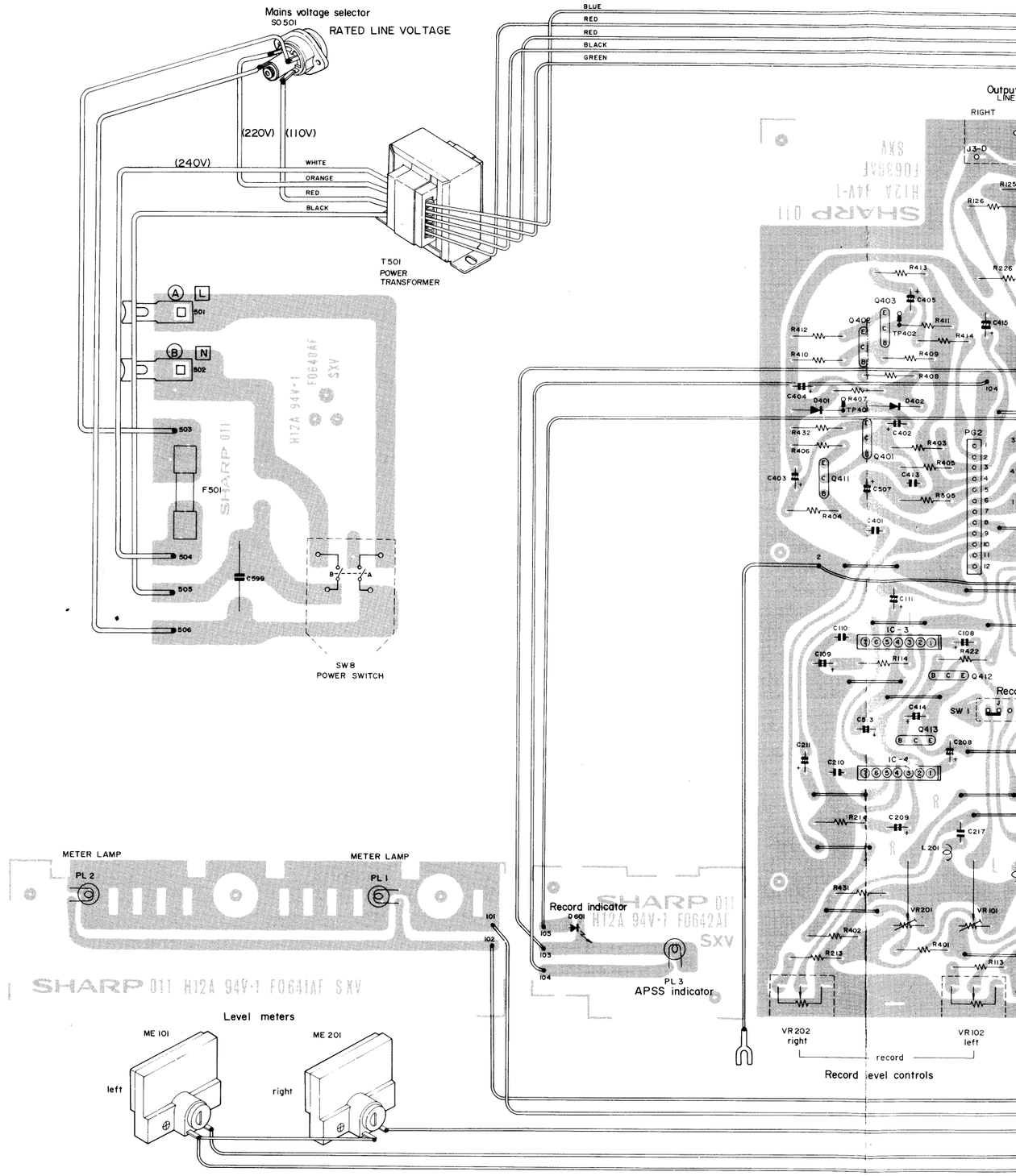


Figure 16 WIRING SIDE OF PRINTED

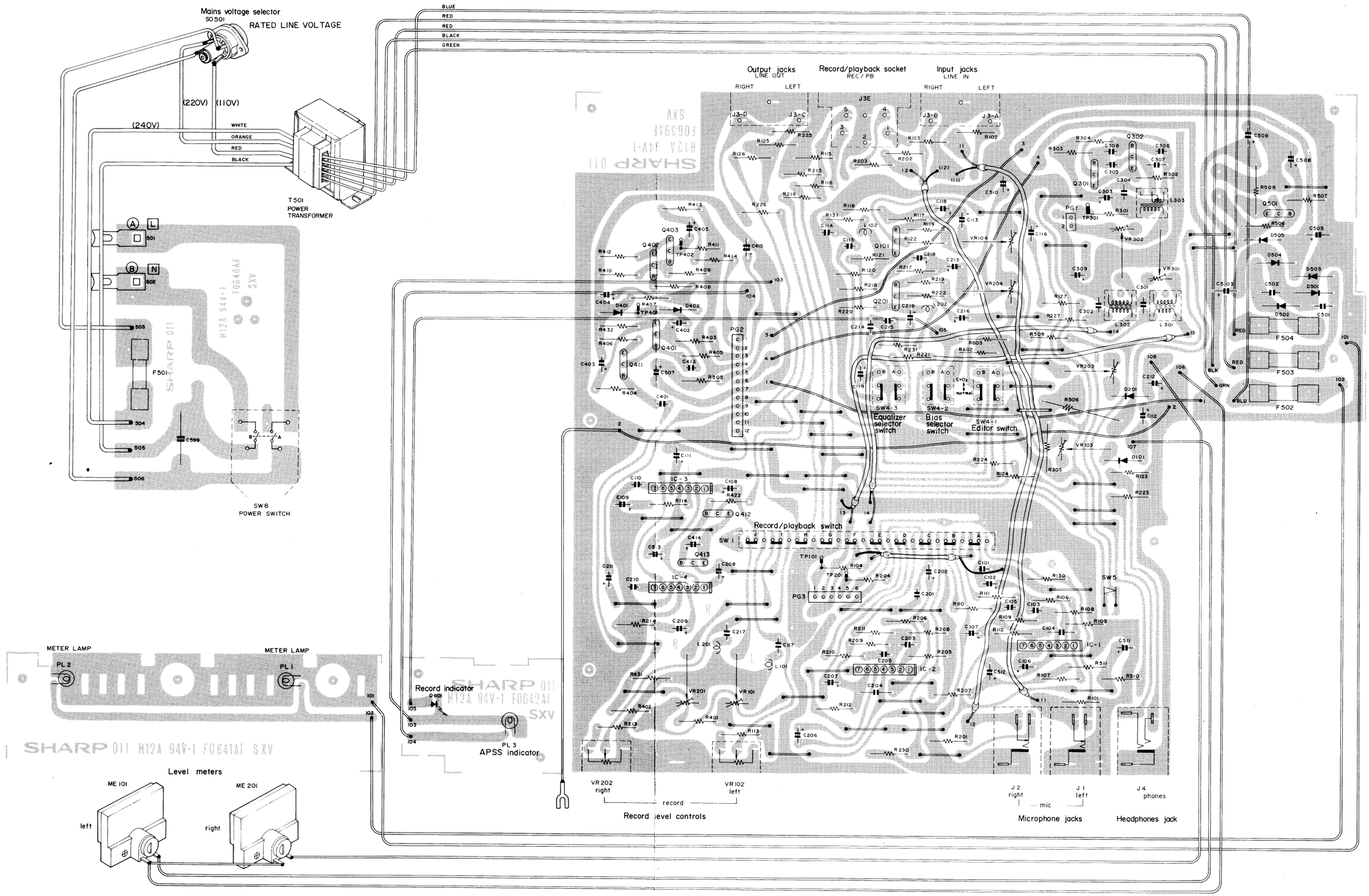


Figure 16 WIRING SIDE OF PRINTED WIRING BOARD (2/2)

NOTES:

1. SW1 (A – J): Record/playback switch. (Shown in playback mode.)
2. SW2 (A – F): Play key interlocking switch. (Shown in stop mode.)
3. SW3 (A – F): Fast forward/rewind key interlocking switch. (Shown in stop mode.)
4. SW4 (1 – 3): SW4–1 (A, B): Editor switch. (Shown in non-depressed position.)
   SW4–2 (A, B): Bias selector switch. (Shown in "normal" position.)
   SW4–3 (A, B): Equalizer selector switch. (Shown in "normal" position.)
5. SW5: Bias switch. (Shown in off mode.)
6. SW6A: Pause key interlocking switch. (Shown in other than pause mode.)
7. SW8 (A, B): Power switch. (Shown in "off" position.)
8. Unless otherwise specified. All capacitance in microfarads. P=micro-microfarads.
9. Unless otherwise specified. All resistance in ohms. K=1,000 ohms. Besides, the one with "Fusible" is a fuse type.
10. The indicated voltage in each section is the one measured by V.T.V.M. between such a section and the chassis with no signal being given.
11. Voltage without parenthes are measured in playback mode.
12. Voltage in parenthes are measured in record mode.
13. Voltages in fences are measured in APSS mode.

(Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.)

Figure 19 SCHEMATIC DIAGRAM

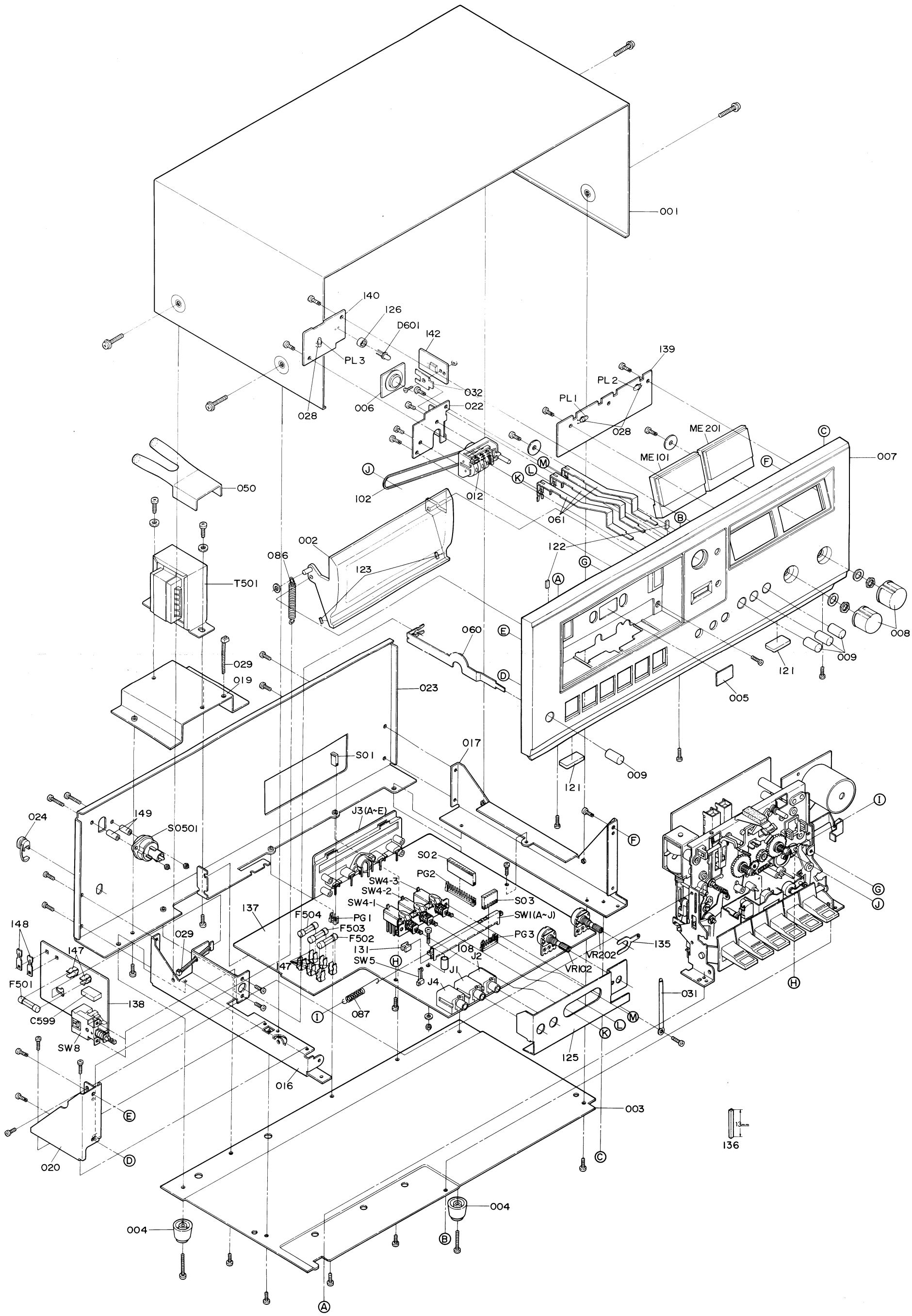


Figure 22 CABINET EXPLODED VIEW

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

REF. NO.	PART NO.	DESCRIPTION	CODE
		INTEGRATED CIRCUITS	
IC1, IC2	RH-IX0437AGZZ	Audio Amp.	AH
IC3, IC4	RH-IX1033AFZZ	Audio Amp.	AK
IC5	RH-IX1075AFZZ	Hall Device	AL
		TRANSISTORS	
Q101, Q201	VS2SC458-D/-1	Record Equalizer	AC
Q301, Q302	VS2SC1214-C-1	Record Bias Oscillator	AD
Q401	VS2SC458-D/-1	APSS Limiter Amp.	AC
Q402	VS2SC458-D/-1	Level Comparison	AC
Q403	VS2SC458-D/-1	Level Comparison	AC
Q404	VS2SA673-C/-1	Differential Circuit	AE
Q405	VS2SC1162WC-3	Solenoid Switching	AF
Q406	VS2SC458-D/-1	Auto Stop Circuit	AC
Q407	VS2SC458-D/-1	Auto Stop Circuit	AC
Q411	VS2SC458-D/-1	APSS Limiter Amp.	AC
Q412	VS2SC458-D/-1	APSS Muting	AC
Q413	VS2SC458-D/-1	APSS Muting	AC
Q414	VS2SC458-D/-1	Hall Device Output Amp.	AC
Q501	VS2SC1214-B-1	Ripple Filter	AD
		DIODES	
D101, D201	VHD1N60////-1	Meter Rectifier	AB
D401	VHD1N60////-1	Rectifier	AB
D402	VHD1N60////-1	Rectifier	AB
D403	RH-DX1006AFZZ	Surge Absorber	AC
D404	VHD1S2076//-1	Transistor Protection	AG
D405	VHD1S2076//-1	Voltage Control	AG
D406	VHD1S2076//-1	Voltage Control	AG
D407	VHD1S2076//-1	Transistor Protection	AG
D408	VHD1S2076//-1	Pulse Rectifier	AG
D412	VHD1S2076//-1	Voltage Control	AG
D413	VHD1S2076//-1	Pulse Rectifier	AG
D501	VHD10E1////-1	Rectifier	AC
D502	VHD10E1////-1	Rectifier	AC
D503	VHD10E1////-1	Rectifier	AC
D504	VHD10E1////-1	Rectifier	AC
D505	VHD10E1////-1	Rectifier	AC
D601	VHPGL-52AR/1F	Record Indicator	AD
		COILS	
L101	RCILZ0019AGZZ	6.8mH, 84kHz Filter	AD
L201	RCILZ0019AGZZ	6.8mH, 84kHz Filter	AD
L102, L202	RCILZ0019AGZZ	6.8mH, Record Equalizer	AD
L301	RCILB0376AFZZ	Bias Step-up	AE
L302	RCILB0376AFZZ	Bias Step-up	AE
L303	RCILB0086AGZZ	Record Bias Oscillator	AF
L501	RCILF0014AGZZ	4.7μH, Choke	AC
		TRANSFORMERS	
T501	RTRNP0454AFZZ	Power	BA
		CONTROLS	
VR101, VR201	RVR-M0127AFZZ	10K ohm (B), Playback Sensitivity Adjust	AC
VR102, VR202	RVR-A0111AFZZ	50K ohm (A), Record Level Control	AE
VR103, VR203	RVR-M0127AFZZ	10K ohm (B), Meter Sensitivity Adjust	AC
VR104, VR204	RVR-M0130AFZZ	50K ohm (B), Record Sensitivity Adjust	AC
VR301, VR302	RVR-M0127AFZZ	10K ohm (B), Bias Current Adjust	AC
		ELECTRICAL CAPACITORS	
C102, C202	VCEALA1HC225M	2.2MFD, 50V, ±20%	AC
C106, C206	VCEAAA1AW107Y	100MFD, 10V, +50 −10%	AB
C107, C207	VCEALA1HC105M	1MFD, 50V, ±20%	AC
C108, C208	VCEALA1HC105M	1MFD, 50V, ±20%	AC
C109, C209	VCEAAU1CW107Y	100MFD, 16V, +50 −10%	AC
C111, C211	VCEAAA1CW476Y	47MFD, 16V, +50 −10%	AB
C112, C212	VCEAAA1CW106Y	10MFD, 16V, +50 −10%	AB
C113, C213	VCEAAA1CW106Y	10MFD, 16V, +50 −10%	AB
C116, C216	VCEAAA1CW106Y	10MFD, 16V, +50 −10%	AB
C118, C218	VCEALA1HW224M	.22MFD, 50V, ±20%	AB
C119, C219	VCEAAA1CW106Y	10MFD, 16V, +50 −10%	AB
C303	VCEAAA1EW106Y	10MFD, 25V, +50 −10%	AB
C309	VCEAAU1VW227Y	220MFD, 35V, +50 −10%	AD
C402	VCEALA1HW474M	.47MFD, 50V, ±20%	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C403	VCEAAA1EW475A	4.7MFD, 25V, +75 −10%	AB
C404	VCEAAA1AW476Y	47MFD, 10V, +50 −10%	AB
C405	VCEAAA1HW106Y	10MFD, 50V, +50 −10%	AB
C406	VCEALA1HW684M	.68MFD, 50V, ±20%	AB
C407	VCEAAU1EW476Y	47MFD, 25V, +50 −10%	AC
C408	VCEAAA1AW107Y	100MFD, 10V, +50 −10%	AB
C409	VCEAAA1CW106Y	10MFD, 16V, +50 −10%	AB
C414	VCEAAA1CW106Y	10MFD, 16V, +50 −10%	AB
C415	VCEAAA1HW475A	4.7MFD, 50V, +75 −10%	AB
C503	VCEAAU1EW108Y	1000MFD, 25V, +50 −10%	AF
C504	VCEAAU1EW107Y	100MFD, 25V, +50 −10%	AC
C505	VCEAAU1VW228Y	2200MFD, 35V, +50 −10%	AK
C506	VCEAAU1CW227Y	220MFD, 16V, +50 −10%	AC
C507	VCEAAU1VW227Y	220MFD, 35V, +50 −10%	AD
C508	VCEAAU1EW227Y	220MFD, 25V, +50 −10%	AC
C509	VCEAAU1EW227Y	220MFD, 25V, +50 −10%	AC
C510	VCEAAU1EW107Y	100MFD, 25V, +50 −10%	AC
C511	VCEAAU1EW227Y	220MFD, 25V, +50 −10%	AC
C512	VCEAAU1CW227Y	220MFD, 16V, +50 −10%	AC
C513	VCEAAU1CW107Y	100MFD, 16V, +50 −10%	AC
		CAPACITORS	
C101, C201	VCQYKU1HM122K	.0012MFD, 50V, ±10%, Mylar	AB
C103, C203	VCCSPU1HL151K	150PF, 50V, ±10%, Ceramic	**
C104, C204	VCCSPU1HL220K	22PF, 50V, ±10%, Ceramic	**
C105, C205	VCQYKU1HM472J	.0047MFD, 50V, ±5%, Mylar	AC
C110, C210	VCQYKU1HM822K	.0082MFD, 50V, ±10%, Mylar	AB
C114, C214	VCQYKU1HM153J	.015MFD, 50V, ±5%, Mylar	AC
C115, C215	VCQYKU1HM392J	.0039MFD, 50V, ±5%, Mylar	AC
C117, C217	VCCSPU1HL561J	560PF, 50V, ±5%, Ceramic	**
C301	VCCSPU1HL561K	560PF, 50V, ±10%, Ceramic	**
C302	VCCSPU1HL561K	560PF, 50V, ±10%, Ceramic	**
C304	VCKZPU1EF103Z	.01MFD, 25V, +80 −20% Ceramic	**
C305	VCQYKU1HM272K	.0027MFD, 50V, ±10%, Mylar	AB
C306	VCQYKU1HM272K	.0027MFD, 50V, ±10%, Mylar	AB
C307	VCQYKU1HM223J	.022MFD, 50V, ±5%, Mylar	AC
C308	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	AB
C401	VCQYKU1HM822K	.0082MFD, 50V, ±10%, Mylar	AB
C413	VCCSPU1HL470K	47PF, 50V, ±10%, Ceramic	**
C501	VCKZPU1HF403Z	.04MFD, 50V, +80 −20%, Ceramic	**
C502	VCKZPU1HF403Z	.04MFD, 50V, +80 −20%, Ceramic	**
C599	RC-HZ053CAFZZ	.01MFD, 250V, ±20%, Metalized Paper	AG
		RESISTORS	
R101, R201	VRD-ST2EE332J	3.3K ohm	**
R102, R202	VRD-ST2EE564J	560K ohm	**
R103, R203	VRD-ST2EE562J	5.6K ohm	**
R104, R204	VRD-ST2EE101J	100 ohm	**
R105, R205	VRD-ST2EE124J	120K ohm	**
R106, R206	VRD-ST2EE274J	270K ohm	**
R107, R207	VRD-ST2EE823J	82K ohm	**
R108, R208	VRD-ST2EE221J	220 ohm	**
R109, R209	VRD-ST2EE684J	680K ohm	**
R110, R210	VRD-ST2EE273J	27K ohm	**
R111, R211	VRD-ST2EE333J	33K ohm	**
R112, R212	VRD-ST2EE272J	2.7K ohm	**
R113, R213	VRD-ST2EE562J	5.6K ohm	**
R114, R214	VRD-ST2EE151J	150 ohm	**
R115, R215	VRD-ST2EE102J	1K ohm	**
R116, R216	VRD-ST2EE152J	1.5K ohm	**
R117, R217	VRD-ST2EE154J	150K ohm	**
R118, R218	VRD-ST2EE103J	10K ohm	**
R119, R219	VRD-ST2EE684J	680K ohm	**
R120, R220	VRD-ST2EE222J	2.2K ohm	**
R121, R221	VRD-ST2EE223J	22K ohm	**
R122, R222	VRD-ST2EE682J	6.8K ohm	**
R123, R223	VRD-ST2EE151J	150 ohm	**
R124, R224	VRD-ST2EE151J	150 ohm	**
R125, R225	VRD-ST2EE102J	1K ohm	**
R126, R226	VRD-ST2EE152J	1.5K ohm	**
R127, R227	VRD-ST2EE123J	12K ohm	**
R128, R228	VRD-ST2EY151J	150 ohm	**
R130, R230	VRD-ST2EE682J	6.8K ohm	**
R131, R231	VRD-ST2EE560J	56 ohm	**
R301	VRD-ST2EE1R0J	1 ohm	**
R302	VRD-ST2EE180J	18 ohm	**
R303	VRD-ST2EE104J	100K ohm	**
R304	VRD-ST2EE104J	100K ohm	**
R305	VRS-PT3AB121K	120 ohm, 1W, ±10%, Metal Oxide Film	**
R306	VRS-PT3LA101K	100 ohm, 3W, ±10%, Metal Oxide Film	**

REF. NO.	PA
R401	VRD-S
R402	VRD-S
R403	VRD-S
R404	VRD-S
R405	VRD-S
R406	VRD-S
R407	VRD-S
R408	VRD-S
R409	VRD-S
R410	VRD-S
R411	VRD-S
R412	VRD-S
R413	VRD-S
R414	VRD-S
R415	VRD-S
R416	VRD-S
R417	VRD-S
R418	VRD-S
R419	VRD-S
R420	VRD-S
R421	VRD-S
R422	VRD-S
R431	VRD-S
R432	VRD-S
R504	VRC-M
R505	VRD-S
R506	VRD-S
R507	VRD-S
R508	VRG-S
R509	VRD-S
R510	VRD-S
R511	VRD-S
R601	VRS-P
R602	VRD-S
R603	VRS-P
1	GCAB
2	GDOR
3	GITAU
4	GLEG
5	HDEC
6	HDEC
7	HPNL
8	JKNB
9	JKNB
10	JKNB
11	JKNB
12	KCOU
13	LANG
14	LANG
15	LANG
16	LANG
17	LANG
18	LANG
19	LANG
20	LANG
21	LANG

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C403	VCEAAA1EW475A	4.7MFD, 25V, +75 −10%	AB
C404	VCEAAA1AW476Y	47MFD, 10V, +50 −10%	AB
C405	VCEAAA1HW106Y	10MFD, 50V, +50 −10%	AB
C406	VCEALA1HW684M	.68MFD, 50V, ±20%	AB
C407	VCEAAU1EW476Y	47MFD, 25V, +50 −10%	AC
C408	VCEAAA1AW107Y	100MFD, 10V, +50 −10%	AB
C409	VCEAAA1CW106Y	10MFD, 16V, +50 −10%	AB
C414	VCEAAA1CW106Y	10MFD, 16V, +50 −10%	AB
C415	VCEAAA1HW475A	4.7MFD, 50V, +75 −10%	AB
C503	VCEAAU1EW108Y	1000MFD, 25V, +50 −10%	AF
C504	VCEAAU1EW107Y	100MFD, 25V, +50 −10%	AC
C505	VCEAAU1VW228Y	2200MFD, 35V, +50 −10%	AK
C506	VCEAAU1CW227Y	220MFD, 16V, +50 −10%	AC
C507	VCEAAU1VW227Y	220MFD, 35V, +50 −10%	AD
C508	VCEAAU1EW227Y	220MFD, 25V, +50 −10%	AC
C509	VCEAAU1EW227Y	220MFD, 25V, +50 −10%	AC
C510	VCEAAU1EW107Y	100MFD, 25V, +50 −10%	AC
C511	VCEAAU1EW227Y	220MFD, 25V, +50 −10%	AC
C512	VCEAAU1CW227Y	220MFD, 16V, +50 −10%	AC
C513	VCEAAU1CW107Y	100MFD, 16V, +50 −10%	AC

CAPACITORS

REF. NO.	PART NO.	DESCRIPTION	CODE
C101, C201	VCQYKU1HM122K	.0012MFD, 50V, ±10%, Mylar	AB
C103, C203	VCCSPU1HL151K	150PF, 50V, ±10%, Ceramic	**
C104, C204	VCCSPU1HL220K	22PF, 50V, ±10%, Ceramic	**
C105, C205	VCQYKU1HM472J	.0047MFD, 50V, ±5%, Mylar	AC
C110, C210	VCQYKU1HM822K	.0082MFD, 50V, ±10%, Mylar	AB
C114, C214	VCQYKU1HM153J	.015MFD, 50V, ±5%, Mylar	AC
C115, C215	VCQYKU1HM392J	.0039MFD, 50V, ±5%, Mylar	AC
C117, C217	VCCSPU1HL561J	560PF, 50V, ±5%, Ceramic	**
C301	VCCSPU1HL561K	560PF, 50V, ±10%, Ceramic	**
C302	VCCSPU1HL561K	560PF, 50V, ±10%, Ceramic	**
C304	VCKZPU1EF103Z	.01MFD, 25V, +80 −20% Ceramic	**
C305	VCQYKU1HM272K	.0027MFD, 50V, ±10%, Mylar	AB
C306	VCQYKU1HM272K	.0027MFD, 50V, ±10%, Mylar	AB
C307	VCQYKU1HM223J	.022MFD, 50V, ±5%, Mylar	AC
C308	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	AB
C401	VCQYKU1HM822K	.0082MFD, 50V, ±10%, Mylar	AB
C413	VCCSPU1HL470K	47PF, 50V, ±10%, Ceramic	**
C501	VCKZPU1HF403Z	.04MFD, 50V, +80 −20%, Ceramic	**
C502	VCKZPU1HF403Z	.04MFD, 50V, +80 −20%, Ceramic	**
C599	RC-HZ053CAFZZ	.01MFD, 250V, ±20%, Metalized Paper	AG

RESISTORS

REF. NO.	PART NO.	DESCRIPTION	CODE
R101, R201	VRD-ST2EE332J	3.3K ohm	**
R102, R202	VRD-ST2EE564J	560K ohm	**
R103, R203	VRD-ST2EE562J	5.6K ohm	**
R104, R204	VRD-ST2EE101J	100 ohm	**
R105, R205	VRD-ST2EE124J	120K ohm	**
R106, R206	VRD-ST2EE274J	270K ohm	**
R107, R207	VRD-ST2EE823J	82K ohm	**
R108, R208	VRD-ST2EE221J	220 ohm	**
R109, R209	VRD-ST2EE684J	680K ohm	**
R110, R210	VRD-ST2EE273J	27K ohm	**
R111, R211	VRD-ST2EE333J	33K ohm	**
R112, R212	VRD-ST2EE272J	2.7K ohm	**
R113, R213	VRD-ST2EE562J	5.6K ohm	**
R114, R214	VRD-ST2EE151J	150 ohm	**
R115, R215	VRD-ST2EE102J	1K ohm	**
R116, R216	VRD-ST2EE152J	1.5K ohm	**
R117, R217	VRD-ST2EE154J	150K ohm	**
R118, R218	VRD-ST2EE103J	10K ohm	**
R119, R219	VRD-ST2EE684J	680K ohm	**
R120, R220	VRD-ST2EE222J	2.2K ohm	**
R121, R221	VRD-ST2EE223J	22K ohm	**
R122, R222	VRD-ST2EE682J	6.8K ohm	**
R123, R223	VRD-ST2EE151J	150 ohm	**
R124, R224	VRD-ST2EE151J	150 ohm	**
R125, R225	VRD-ST2EE102J	1K ohm	**
R126, R226	VRD-ST2EE152J	1.5K ohm	**
R127, R227	VRD-ST2EE123J	12K ohm	**
R128, R228	VRD-ST2EY151J	150 ohm	**
R130, R230	VRD-ST2EE682J	6.8K ohm	**
R131, R231	VRD-ST2EE560J	56 ohm	**
R301	VRD-ST2EE1R0J	1 ohm	**
R302	VRD-ST2EE180J	18 ohm	**
R303	VRD-ST2EE104J	100K ohm	**
R304	VRD-ST2EE104J	100K ohm	**
R305	VRS-PT3AB121K	120 ohm, 1W, ±10%, Metal Oxide Film	**
R306	VRS-PT3LA101K	100 ohm, 3W, ±10%, Metal Oxide Film	**
R401	VRD-ST2EE563J	56K ohm	**
R402	VRD-ST2EE563J	56K ohm	**
R403	VRD-ST2EE123J	12K ohm	**
R404	VRD-ST2EE823J	82K ohm	**
R405	VRD-ST2EE223J	22K ohm	**
R406	VRD-ST2EE121J	120 ohm	**
R407	VRD-ST2EE222J	2.2K ohm	**
R408	VRD-ST2EE272J	2.7K ohm	**
R409	VRD-ST2EE223J	22K ohm	**
R410	VRD-ST2EE823J	82K ohm	**
R411	VRD-ST2EE153J	15K ohm	**
R412	VRD-ST2EE121J	120 ohm	**
R413	VRD-ST2EE332J	3.3K ohm	**
R414	VRD-ST2EE561J	560 ohm	**
R415	VRD-SU2EY122J	1.2K ohm	**
R416	VRD-ST2EY681J	680 ohm	**
R417	VRD-ST2EY154J	150K ohm	**
R418	VRD-ST2EY184J	180K ohm	**
R419	VRD-ST2EY102J	1K ohm	**
R420	VRD-SU2EY681J	680 ohm	**
R421	VRD-ST2EY123J	12K ohm	**
R422	VRD-ST2EE123J	12K ohm	**
R431	VRD-ST2EE103J	10K ohm	**
R432	VRD-ST2EE102J	1K ohm	**
R504	VRC-MT2HG102K	1K ohm, 1/2W, ±10%, Carbon Composition	**
R505	VRD-ST2EE102J	1K ohm	**
R506	VRD-ST2EE222J	2.2K ohm	**
R507	VRD-ST2EE822J	8.2K ohm	**
R508	VRG-ST2EA100J	10 ohm, 1/4W, ±5%, Fusible	AB
R509	VRD-ST2EE102J	1K ohm	**
R510	VRD-ST2EE561J	560 ohm	**
R511	VRD-ST2EE393J	39K ohm	**
R601	VRS-PT3DB221K	220 ohm, 2W, ±10%, Metal, Oxide Film	**
R602	VRD-ST2EE182J	1.8K ohm	**
R603	VRS-PT3AB681K	680 ohm, 1W, ±10%, Metal, Oxide Film	**

MISCELLANEOUS

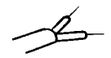
	PART NO.	DESCRIPTION	CODE
1	GCAB-3044AFSA	Cabinet	AT
2	GDORF3053AFSA	Door, Cassette Compartment	AG
3	GITAU0006AFZZ	Plate, Bottom	AH
4	GLEGP0053AF00	Leg	AC
5	HDECB0018AGS	Mirror	AA
6	HDECQ0074AFSA	Cover, APSS Indicator	AG
7	HPNLC1238AFSA	Front Panel	AV
8	JKNBN0344AFSA	Knob, Record Level Control	AF
9	JKNBP0065AFSF	Knob, Pushed Switch	AC
10	JKNBR0110AFSA	Lever, Mechanism Operation	AC
11	JKNBR0110AFSB	Lever, Record	AD
12	KCOUB0066AFZZ	Tape Counter	AN
13	LANGA0060AFFW	Lever, Record Safety	—
14	LANGF0398AFFW	Bracket, Motor Retaining	—
15	LANGF0400AFFW	Bracket, Flywheel	—
16	LANGJ0060AFZZ	Bracket, Left Hand Side	AF
17	LANGJ0061AFZZ	Bracket, Right Hand Side	AF
18	LANGK0187AFFF	Lever, Cassette Retaining	—
19	LANGR0437AFZZ	Bracket, Transformer	—
20	LANGT0636AFZZ	Bracket, Front Panel	AE
21	LANGT0637AFZZ	Bracket, Mechanism Block	AC
22	LANGT0638AFZZ	Bracket, Tape Counter	AB
23	LANGT0666AFSA	Rear Panel	AN
24	LBSHC0002AGZZ	Bushing, Mains Supply Cord	AB
	LBSHC0004AGZZ	Bushing, Mains Supply Cord	AC
	LBSHC0007AFZZ	Bushing, Mains Supply Cord	AB
25	LBSHS0001AG00	Cushion, Motor	AA
26	LCHSM0269AFZZ	Mechanism Chassis	—
27	LCHSS0124AFZZ	Mechanism Sub-chassis	—
28	LHLDP3053AFFW	Holder, Pilot Lamp	AA
29	LHLDW1067AFZZ	Wire Holder	AA
30	LHLDW1070AFZZ	Wire Holder, Heads	AB
31	LHLDW9003CEZZ	Wire Holder	AA
32	LHLDZ1070AFZZ	Retainer, Hall Device	AB
33	LPINB0051AFFW	Pin, Solenoid	
34	LHLDW1069AFZZ	Wire Holder	AA
35	LSLVM0073AFFW	Sleeve, Solenoid Connecting Lever	
36	LSTPF0052AFFW	Bracket, Operation Lever Shaft	AB
37	LSTWC2001AFZZ	Stop Ring, ϕ2 mm	—
38	LSTWC3002AFZZ	Stop Ring, ϕ3 mm	—
39	LSTWC4004AFZZ	Stop Ring, ϕ4 mm	—
40	LX-BZ0214AFZZ	Screw, Flywheel Thrust Adjust	AB
41	LX-BZ0219AFFD	Screw, Motor Retaining	AA
42	MSPRT0518AFFJ	Spring, Record Operating Lever	—
43	LX-HZ0056AFFD	Screw, With Washer, ϕ3 x 10 mm	—
44	MSPRT0525AFFJ	Spring, Safety Lever	—
45	LX-WZ5018AGZZ	Washer, ϕ2.1 x ϕ4 x 0.25 mm	AA
46	LX-WZ5020AGZZ	Washer, ϕ1.7 x ϕ3.2 x 0.25 mm	AA
47	LX-WZ5037AGZZ	Washer, Flywheel Thrust	AA
48	LX-WZ9053AFZZ	Washer, Oil Cut	AA
49	MLEVF0729AFZZ	Lever, Record/Playback Operation	AE
50	PCOVW9105AFZZ	Cover, Transformers Lead Wire	AG
51	MLEVF0732AFFW	Lever, Record Operating	AD
52	MLEVF0733AFFW	Lever, Pause Operating Lever Lock	AC
53	MLEVF0734AFZZ	Lever, Fast Forward/Rewind Operating	AG
54	MLEVF0735AFFW	Lever, Solenoid Connecting	AC
55	MLEVF0737AFFW	Lever, Fast Forward Operating Roller	AD
56	MLEVF0738AFFW	Lever, Record Operating Lever Safety	AC
57	MLEVF0739AFZZ	Lever, Pause Operating	AF
58	MLEVF0740AFZZ	Lever, Fast Forward/Rewind Lever Lock	AG
59	MLEVF0741AFZZ	Lever, Play Lever Lock	AF
60	MLEVF0748AFZZ	Lever, Power Switch	AC
61	MLEVF0749AFZZ	Lever, Pushed Switch	AC
62	MLEVF0750AFZZ	Lever, Record/Playback Switch	AE
63	MLEVF0751AFZZ	Lever, Record/Playback Switch Connecting	AC
64	MLEVP0078AF00	Tip, Cassette Retaining Spring	
65	MLEVP0086AFZZ	Lever, Brake Pressure	AB
66	MLEVP0087AFZZ	Lever, Record Safety	AC
68	MLEVP0089AFZZ	Lever, Take-up Idler Connecting	AB
69	MLEVP0091AFZZ	Lever, Take-up Idler	AC
70	MLEVP0092AFZZ	Lever, Solenoid Connecting	AC
71	MLEVP0094AFZZ	Lever, Brake	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
72	MRODM0058AFFD	Rod, Take-up Idler Lever Connecting	AB
73	MSPRC0031AGMN	Spring, Record/Playback Head Azimuth	AA
74	MSPRC0123AFFJ	Spring, Solenoid	AA
75	MSPRD0136AFFJ	Spring, Cassette Retaining	AB
76	MSPRD0161AFFJ	Spring, Pressure Roller	AB
77	MSPRD0179AFFP	Spring, Brake Pressure Lever	—
78	MSPRD0164AFFJ	Spring, Pause Operating Lever Lock Lever	AA
79	MSPRP0156AFFJ	Spring, Operating Lever	AE
80	MSPRP0157AFFJ	Spring, Sub-chassis Retaining	AC
85	MSPRP0163AFFJ	Spring, Cassette Retaining	—
86	MSPRT0378AFFJ	Spring, Cassette Compartment Door	AB
87	MSPRT0379AFFJ	Spring, Record/Playback Switch	AA
88	MSPRT0380AFFJ	Spring, Record/Playback Switch Lever Return	AA
89	MSPRT0384AFFJ	Spring, Record/Playback Switch Lever	AA
90	MSPRT0463AFFJ	Spring, Record Safety Lever	AA
91	MSPRT0464AFFJ	Spring, Take-up Idler	AA
92	MSPRT0465AFFJ	Spring, Over Stroke Absorb	AA
93	MSPRT0467AFFJ	Spring, Record Operating Lever	AA
95	MSPRT0470AFFJ	Spring, Play Lever Lock Lever	AA
96	MSPRT0471AFFJ	Spring, Fast Forward/Rewind Operating Roller	AA
97	MSPRT0472AFFJ	Spring, Fast Forward/Rewind Operating Roller	AA
98	MSPRT0506AFFJ	Spring, Record/Playback Operating Lever	AA
99	MSPRT0509AFFJ	Spring, Fast Forward/Rewind Lever Lock Lever	AA
100	NBALS0004AGFJ	Steel Ball, ϕ3 mm	AA
101	NBLTH0058AFZZ	Belt, Mechanism Drive	AD
102	NBLTK0117AFZZ	Belt, Tape Counter Drive	AC
103	NBRGC0059AFZZ	Bearing, Capstan	AG
104	NDAIR0121AFSA	Turntable, Take-up	AG
105	NDAIR0122AFSA	Turntable, Supply	AE
106	NFLYC0066AFZZ	Flywheel	AL
107	NIDR-0057AFZZ	Idler, Take-up	AF
108	LBOSG0059AFFW	Stopper, Record/Playback Switch Lever	AB
109	NPLYR0050AFZZ	Pulley, Take-up, Rubber	AB
110	NROLW0004AFZZ	Roller, Fast Forward/Rewind Operating	AK
111	NROLX0003AFZZ	Gear, Rewind	AB
112	NROLY0011AFZZ	Lever, Pressure Roller	AF
113	NSFTT0105AFFP	Shaft, Operating Lever	AE
116	NSFTZ0058AFFD	Shaft, Cassette Retaining Lever	AB
117	PCUSG0086AF00	Rubber, Brake Lever	
118	PCUSG0062AF00	Cushion, Rubber, Sub-chassis Shock Absorb	AA
119	PCUSG0078AF00	Cushion, Rubber, Operating Lever Shock Absorb	AC
120	PCUSG0079AF00	Cushion, Rubber, Play Lever Lock Lever Shock Absorb	AB
121	PFLT-0276AFZZ	Leg, Felt	AA
122	PGUMM0104AF00	Cushion, 3 x 8 x 2 mm	AA
123	PGUMS0103AF00	Cushion, Rubber, 2 x 8 x 0.8 mm	AA
125	PSLDC3065AFZZ	Plate, Microphones/Headphones Jack Shield	AC
126	PSPAS0061AFZZ	Spacer, Record Indicator	AA
127	QACCB0052AF09	Mains Supply Cord, BEAB Safety Standard, Without Plug	AM
	QACCL0001AFZZ	Mains Supply Cord, SAA Safety Standard, With Plug	AR
	QACCV0001AGZZ	Mains Supply Cord, VDE Safety Standard, With Plug	AP
	QACCZ0002AG08	Mains Supply Cord, Without Plug	AF
	QACCZ0002TA0F	Mains Supply Cord, With Plug	AF
128	PCUSS0096AFZZ	Cushion, 10 x 20 x 6 mm	AA
129	PFLT-0329AF00	Felt, Fast Forward/Rewind Lever	AA
130	PGUMS0113AF00	Cushion, 7 x 7 x 1 mm	AA
131	PSPAV0056AF00	Spacer, Record/Playback Switch	AB
133	PZETV0006CE00	Insulator	AA
135	QLUGE003AAGZZ	Lug Terminal, Ground	AA
136	QLUGP0111CEFW	Lug Terminal, Printed Wiring Board	AA
137	QPWBF0639AFZZ	Printed Wiring Board, Record/Playback Amp.	—
138	QPWBF0640AFZZ	Printed Wiring Board, Power Switch	—
139	QPWBF0641AFZZ	Printed Wiring Board, Pilot Lamp	—
140	QPWBF0642AFZZ	Printed Wiring Board, Record Indicator	—
141	QPWBF0643AFZZ	Printed Wiring Board, Mechanism Block	—
142	QPWBF0644AFZZ	Printed Wiring Board, Hall Device	—
143	QTIPZ0058AFZZ	Tip, Plug	AA
144	RHEDA0059AFZZ	Head, Erase	AK
145	RHEDH0063AFZZ	Head, Record/Playback	AV
146	RMOTV0056AFZZ	Motor	AX
147	QFSHD1001AGZZ	Holder, Fuse	AB
148	QTANZ0160AFZZ	Lug Terminal	AA
149	PSPAB0103AFFW	Spacer, Voltage Selector	AA
J4	QJAKJ0055AFZZ	Jack, Headphones	AE
J1, J2	QJAKZ0062AFZZ	Jack, Microphones	AE
PG1	QCNCM171BAFZZ	Plug, 2 Pin	AB
PG3	QCNCM175FAFZZ	Plug, 6 Pin	AC
PG2	QCNCM181MAFZZ	Plug, 12 Pin	AC
SO1	QCNCW142BAFZZ	Socket, 2 Pin	AA
SO3	QCNCW146FAFZZ	Socket, 6 Pin	AB
SO2	QCNCW152MAFZZ	Socket, 12 Pin	AB
J3 (A–E)	QSOCZ2476AFZZ	J3 (A, B): Line Input Jack J3 (C, D): Line Output Jack J3E: Record/Playback Socket	AK
SW5	QSW-F0116AFZZ	Switch, Bias	AE
SW8	QSW-P0158AFZZ	Switch, Power	AM
SW4 (1–3)	QSW-P0153AFZZ	SW4-1: Switch, Editor SW4-2: Switch, Bias Selector SW4-3: Switch, Record Equalizer Selector	AM
SW6 (A, B)	QSW-S0188AFZZ	Switch, Pause Lever Connecting	AE
SW2 (A–F)	QSW-S0205AFZZ	Switch, Play Lever Connecting	AG
SW3 (A–F)	QSW-S0206AFZZ	Switch, Fast Forward/Rewind Lever Connecting	AG

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
SW1 (A–J)	QSW-S0211AFZZ	Switch, Record/Playback	AG
PL1, PL2	RLMPM0060AFZZ	Pilot Lamp, Meter Illumination (12V/75mA)	AC
PL3	RLMPM0060AFZZ	Pilot Lamp, APSS Indicator (12V/75mA)	AC
ME101, ME201	RMTRL0155AFZZ	Level Meter	AS
SOL401	RPLU-0071AFZZ	Solenoid	AR
F501	QFS-C800CAGNI	Fuse, 80mAT	AG
F502, F503, F504	QFS-C631CAGNI	Fuse, 630mAT	AE
SO501	QSOCE0410AGZZ	Voltage Selector	AH
	QCNW-0117AFZZ	Connecting Cord (RCA type)	AL
	QCNW-0139AFZZ	Connecting Cord (DIN type)	AS
	SPAKA0419AFZZ	Cushion, Packing	AH
	SPAKC1113AFZZ	Individual Carton	AH
	SSAKA0024AFZZ	Sack, Operation Manual	AA
	SSAKH0075AGZZ	Sack, Unit	AB
	TCAUH0056AGZZ	Caution Sheet, Mains Supply Cord (For Users in UK)	—
	TCAUZ0039AFZZ	Caution Sheet, Unit Sack (For Users in UK)	—
	TCTLE0001AGZZ	Catalog, For Users in UK	—
	TGANE1015AGZZ	Warranty Card, For Users in Australia	—
	TGANE1117AFZZ	Warranty Card, For Users in UK	—
	TGANG1039AFZZ	Warranty Card, For Users in Europe	—
	TINSL0120AFZZ	Operation Manual	AS
	TLABS0067AFZZ	Label, Funk-	—
	TLABJ0006AFZZ	Label, MADE IN JAPAN	—
	TLABS0004AGZZ	Label, SEV Safety Standard	—
	TLABS0016AGZZ	Label, SEMKO/NEMKO Safety Standard	—
	TLABS0054AFZZ	Label, BEAB Safety Standard	—
	TLABS0063AFZZ	Label, DEMKO Safety Standard	—
	TLSTS0001ZZRO	Service Station List, For Users in Australia	—
	TMAPC0482AFZZ	Schematic Diagram	—
	TSPC-0476AFZZ	Label, Specification	—
	TTAGH0028AFZZ	Tag, English/German/French	—
150	MSPRT0517AFFJ	Spring, Solenoid Connecting Lever	AA
151	LBSHZ0050AFZZ	Stopper, Solenoid Connecting Lever	AA
152	LX-WZ3054AFFD	Lockwasher, External	AA
	QPLGA0201AGZZ	Plug, Mains Supply Cord	AE

Mains supply cord	Bushing & Plug	
QACCB0052AF09	LBSHC0002AGZZ	
QACCL0001AFZZ	LBSHC0007AFZZ	
QACCV0001AGZZ	LBSHC0004AGZZ	
QACCZ0002AG08	LBSHC0007AFZZ QPLGA0201AGZZ	
QACCZ0002TA0F	LBSHC0007AFZZ	

PARTS LIST

	CODE
dphones	AC
r	AA
AB	AM
ut Plug	
A Safety	AR
E Safety	AP
nout	AF
n Plug	AF
n	AA
nd	AA
	AA
:	AB
	AA
	AA
iring	AA
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ecord	—
	—
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	AA
	AK
	AV
	AX
	AB
	AA
	AA
	AE
	AE
	AB
	AC
	AC
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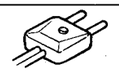
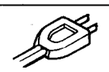
ocket	
	AE
	AM
ctor	AM
qual-	
necting	AE
ecting	AG
wind	AG

REF. NO.	PART NO.	DESCRIPTION	CODE
SW1 (A–J)	QSW-S0211AFZZ	Switch, Record/Playback	AG
PL1, PL2	RLMPM0060AFZZ	Pilot Lamp, Meter Illumination (12V/75mA)	AC
PL3	RLMPM0060AFZZ	Pilot Lamp, APSS Indicator (12V/75mA)	AC
ME101, ME201	RMTRL0155AFZZ	Level Meter	AS
SOL401	RPLU-0071AFZZ	Solenoid	AR
F501	QFS-C800CAGNI	Fuse, 80mAT	AG
F502, F503, F504	QFS-C631CAGNI	Fuse, 630mAT	AE
SO501	QSOCE0410AGZZ	Voltage Selector	AH
	QCNW-0117AFZZ	Connecting Cord (RCA type)	AL
	QCNW-0139AFZZ	Connecting Cord (DIN type)	AS
	SPAKA0419AFZZ	Cushion, Packing	AH
	SPAKC1113AFZZ	Individual Carton	AH
	SSAKA0024AFZZ	Sack, Operation Manual	AA
	SSAKH0075AGZZ	Sack, Unit	AB
	TCAUH0056AGZZ	Caution Sheet, Mains Supply Cord (For Users in UK)	—
	TCAUZ0039AFZZ	Caution Sheet, Unit Sack (For Users in UK)	—
	TCTLE0001AGZZ	Catalog, For Users in UK	—
	TGANE1015AGZZ	Warranty Card, For Users in Australia	—
	TGANE1117AFZZ	Warranty Card, For Users in UK	—
	TGANG1039AFZZ	Warranty Card, For Users in Europe	—
	TINSL0120AFZZ	Operation Manual	AS
	TLABS0067AFZZ	Label, Funk-	—
	TLABJ0006AFZZ	Label, MADE IN JAPAN	—
	TLABS0004AGZZ	Label, SEV Safety Standard	—
	TLABS0016AGZZ	Label, SEMKO/NEMKO Safety Standard	—
	TLABS0054AFZZ	Label, BEAB Safety Standard	—
	TLABS0063AFZZ	Label, DEMKO Safety Standard	—
	TLSTS0001ZZRO	Service Station List, For Users in Australia	—
	TMAPC0482AFZZ	Schematic Diagram	—
	TSPC-0476AFZZ	Label, Specification	—
	TTAGH0028AFZZ	Tag, English/German/French	—
150	MSPRT0517AFFJ	Spring, Solenoid Connecting Lever	AA
151	LBSHZ0050AFZZ	Stopper, Solenoid Connecting Lever	AA
152	LX-WZ3054AFFD	Lockwasher, External	AA
	QPLGA0201AGZZ	Plug, Mains Supply Cord	AE

Mains supply cord	Bushing & Plug	
QACCB0052AF09	LBSHC0002AGZZ	
QACCL0001AFZZ	LBSHC0007AFZZ	
QACCV0001AGZZ	LBSHC0004AGZZ	
QACCZ0002AG08	LBSHC0007AFZZ QPLGA0201AGZZ	
QACCZ0002TA0F	LBSHC0007AFZZ	

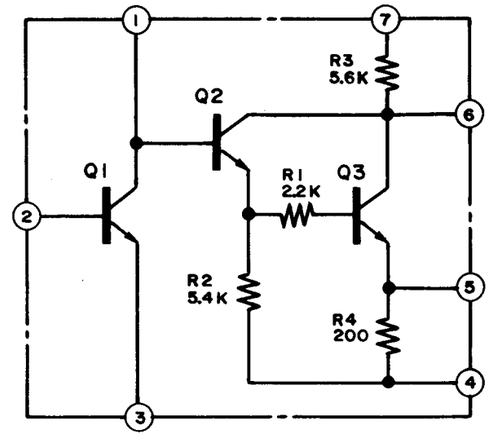


Figure 28–1 EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT (IC1, IC2)

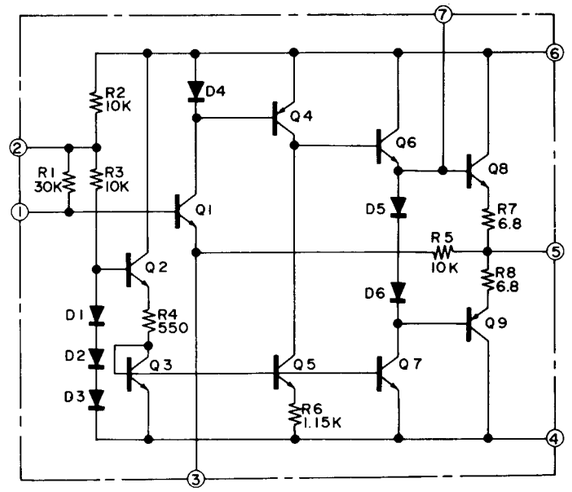


Figure 28–2 EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT (IC3, IC4)

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